GAS JOURNAL

LIGHT ∴ HEAT ∴ POWER

BYE-PRODUCTS.

Founded in 1849 as the "Journal of Gas Lighting."

VOL. CCIV.

OCTOBER TO DECEMBER, 1933.

LONDON:

WALTER KING, LTD.,

11, BOLT COURT, FLEET STREET, E.C. 4.

—

1933.

GAS JOURNAL

LIGHT . HEAT . POWER . BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

Vol. 204. 85th Year. LONDON, OCTOBER 4, 1933. No. 3672. Price 1s.

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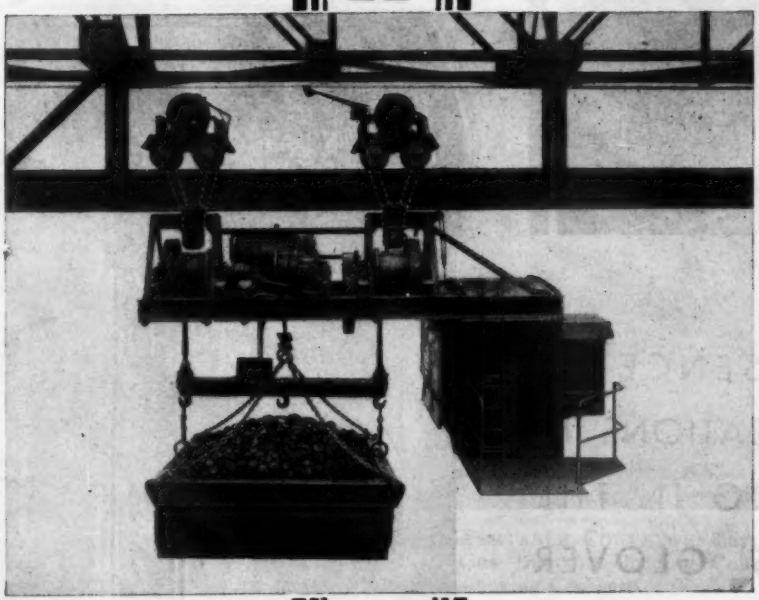

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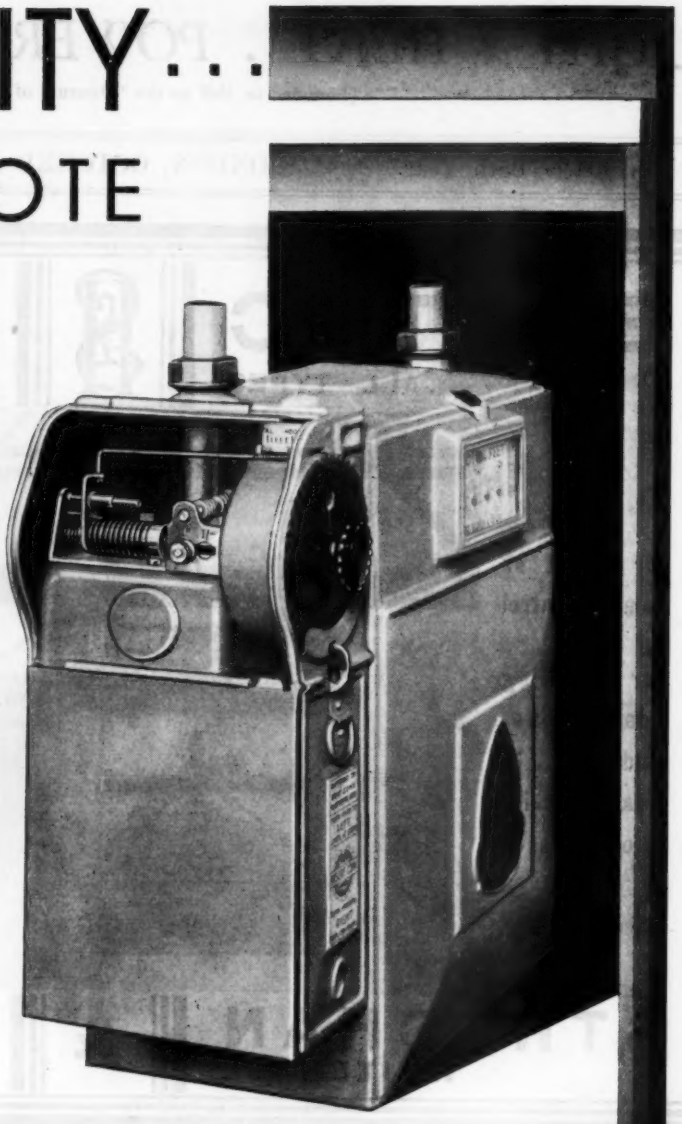

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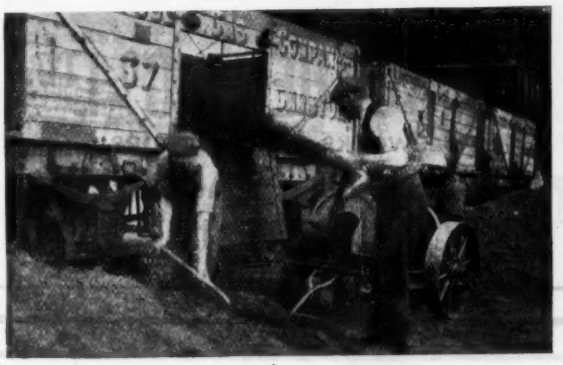

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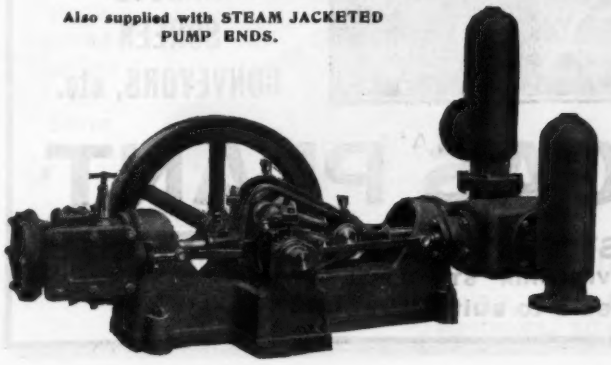

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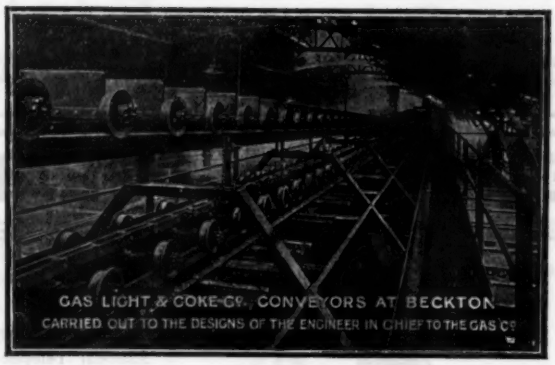

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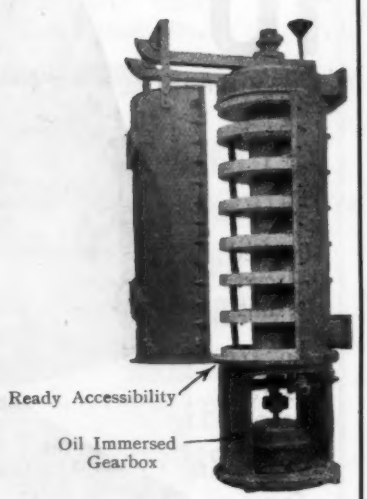

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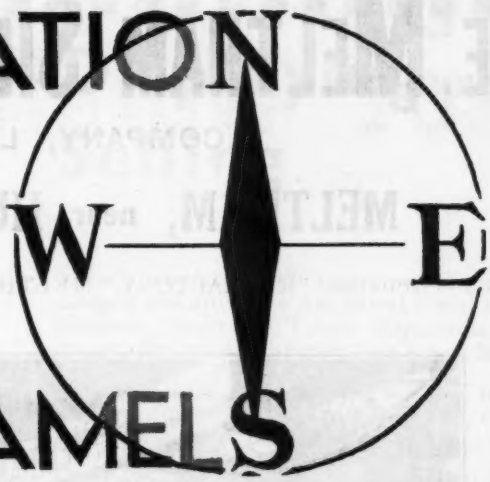

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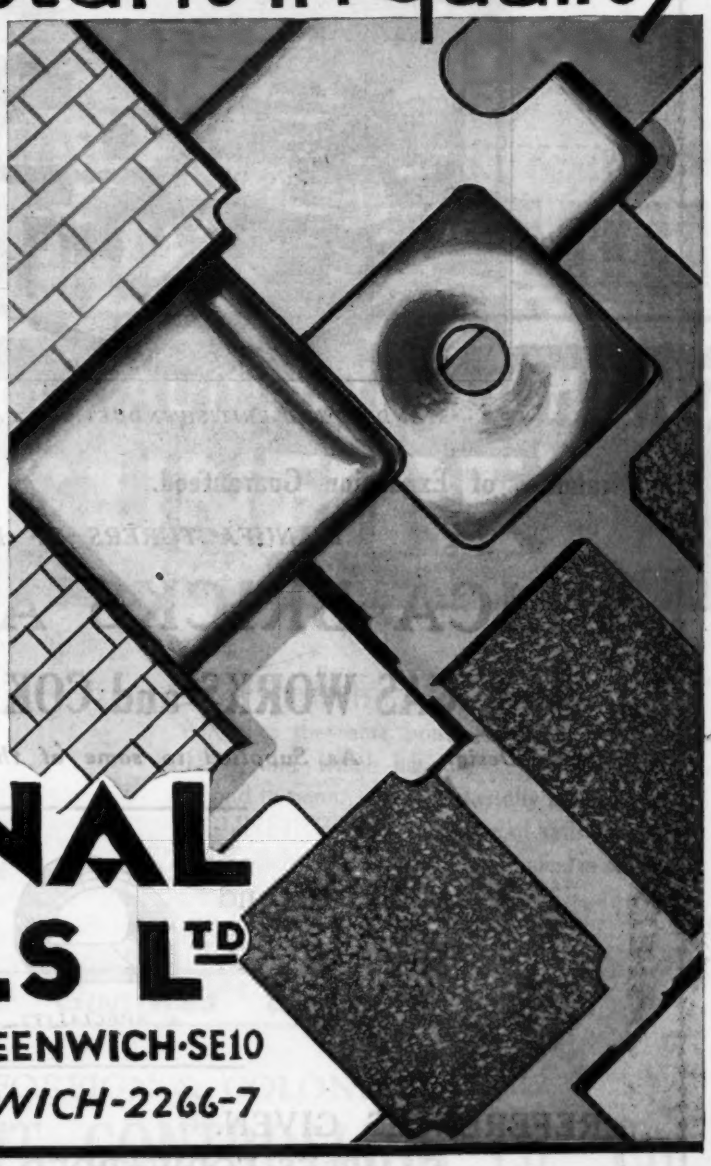

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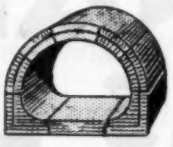
VERTICAL and SILICA  HORIZONTAL RETORTS

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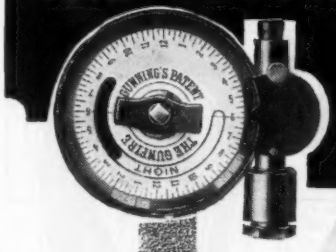

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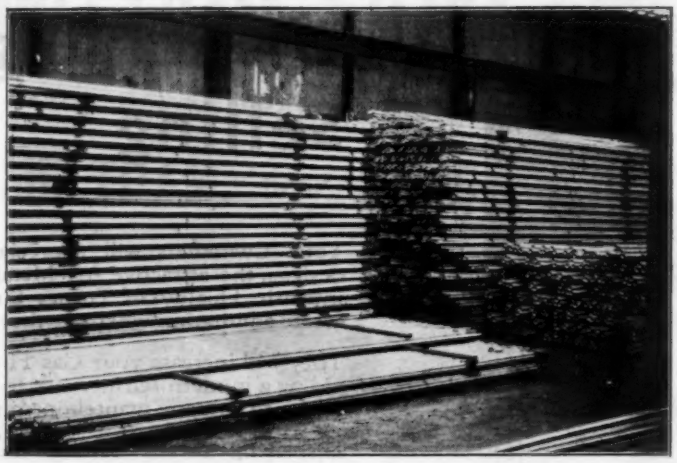

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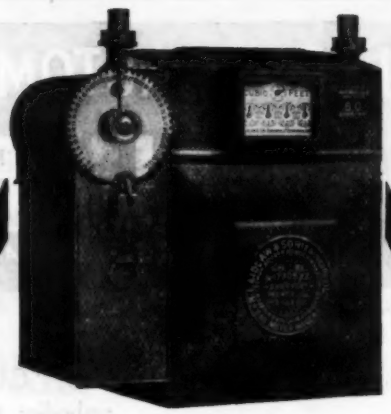

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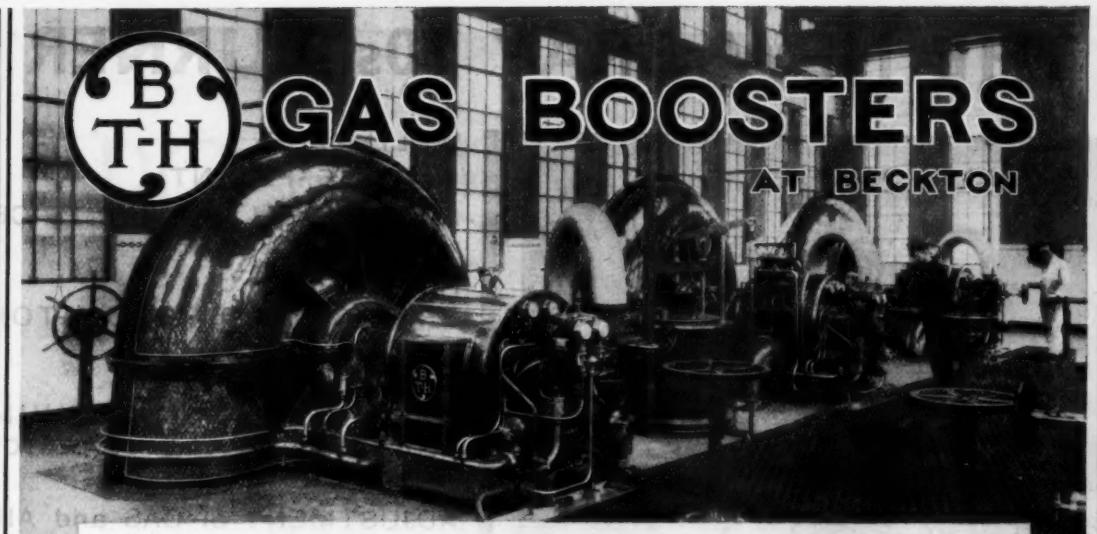

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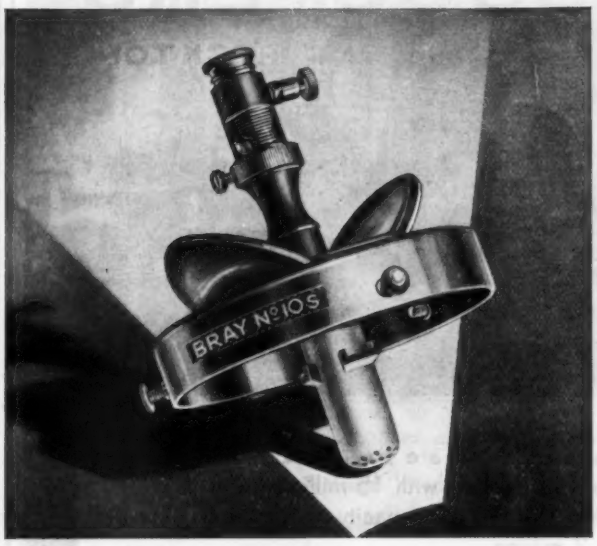

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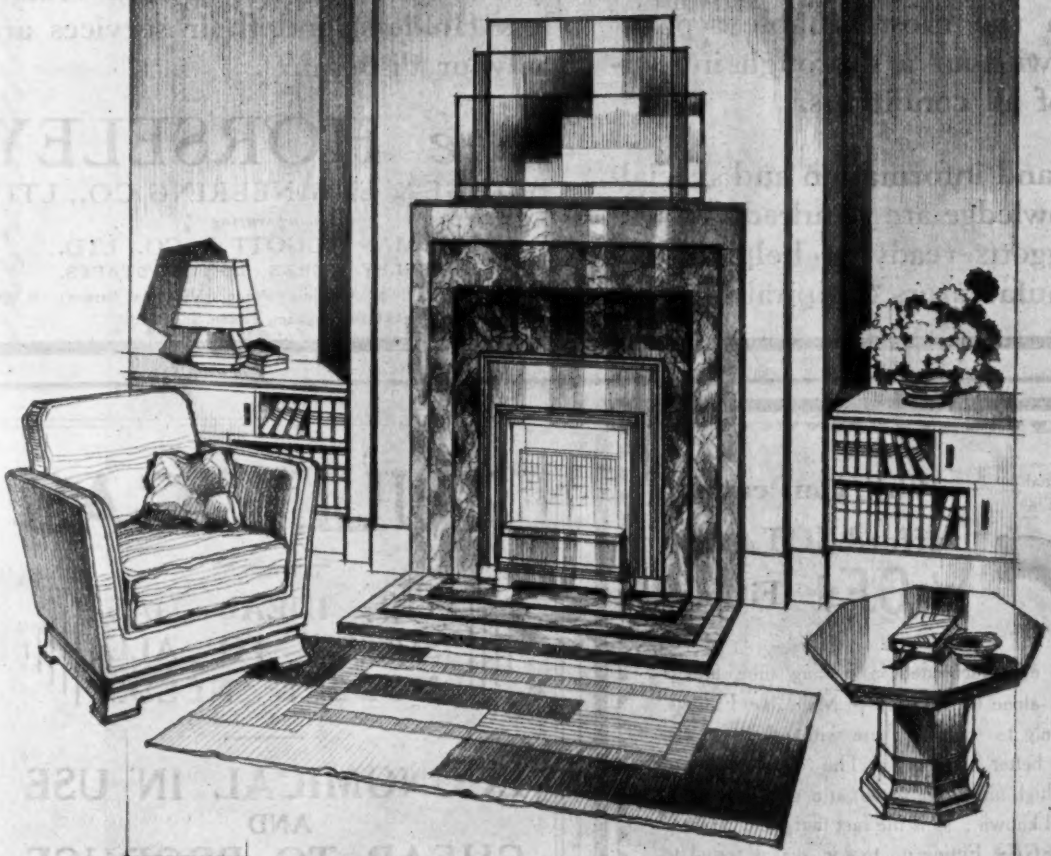

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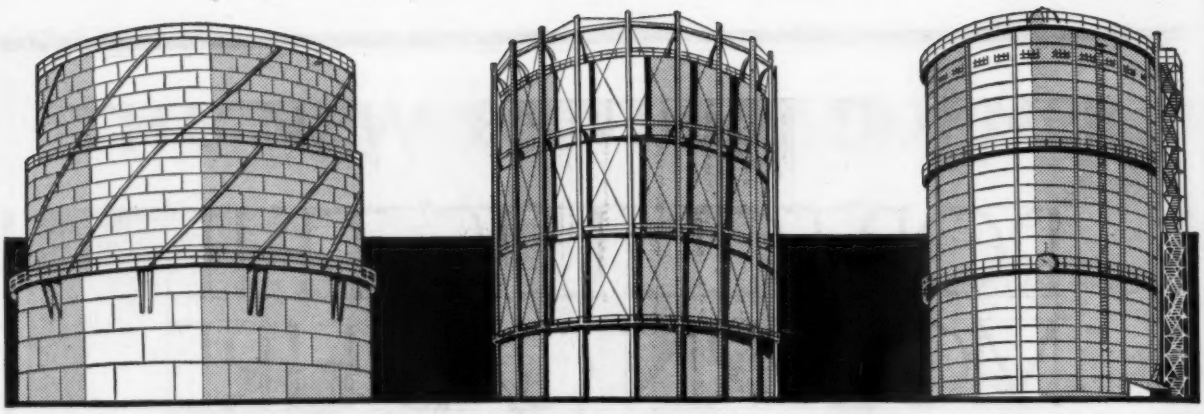

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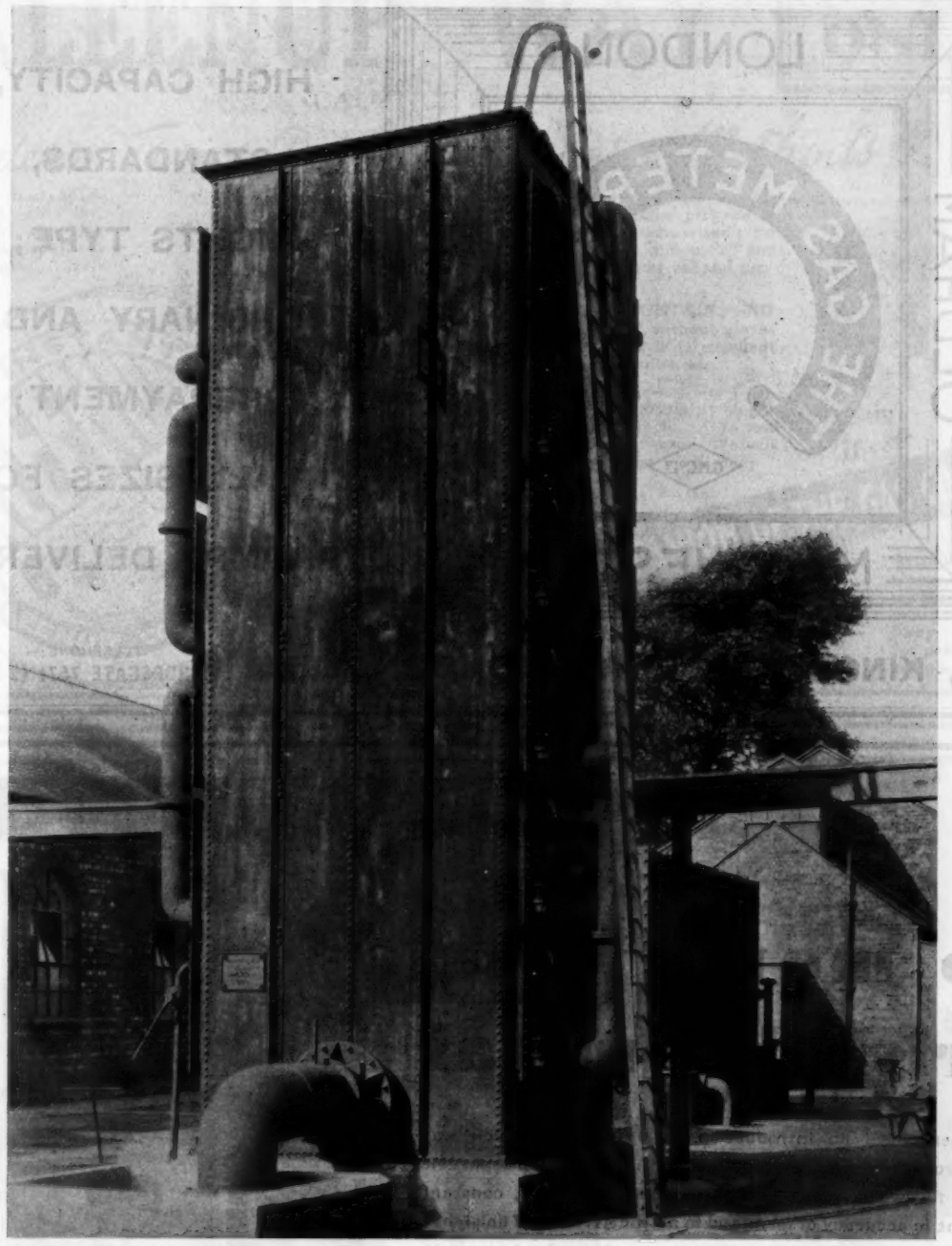

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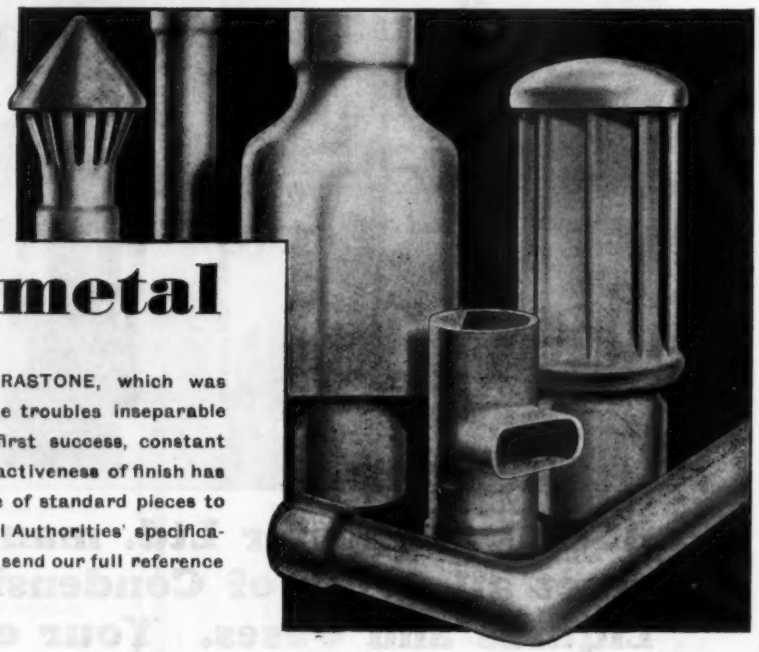

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AND SO WITH COOKER CLEANING

THE "KLEENUP WAY"

(NON-CAUSTIC)

Modern Times Demand Modern Methods

In tins for household use at 6d. In 7 lb. drums for use in large kitchens, stove repair depts., etc.

● Match "Kleenup"—the magic cleaner for gas cookers—against any other similar preparation you like. **"Kleenup" challenges comparison;** for speed—it cleans in a few seconds and metal and enamel come up like new—for ease of use and non-scratch qualities.

And, mark this, "Kleenup" CONTAINS NO CAUSTIC and can be safely used without gloves or brush—NON-INFLAMMABLE, it is excellent for cleaning the hands of grease, dirt, etc.

"KLEENUP" is the cleaner that every Gas Company interested in promoting the popularity of gas cookers should recommend and supply. One test will convince you of this. Make it now. We will gladly supply FREE the necessary "Kleenup."

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Astrah De-greasing Compound, non-inflammable, non-caustic for Stove Shop use: write for particulars and sample.

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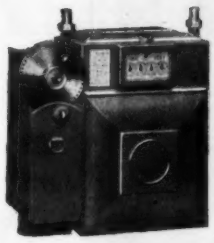
PRESSURE GAUGES
SYPHON PUMPS



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Simple, Strong, Compact, Accurate
1d. or **1s.** or **Two-Coin**

Station Meters, Test Meters, Brasswork

DRY GAS METERS
Standard and High Capacity

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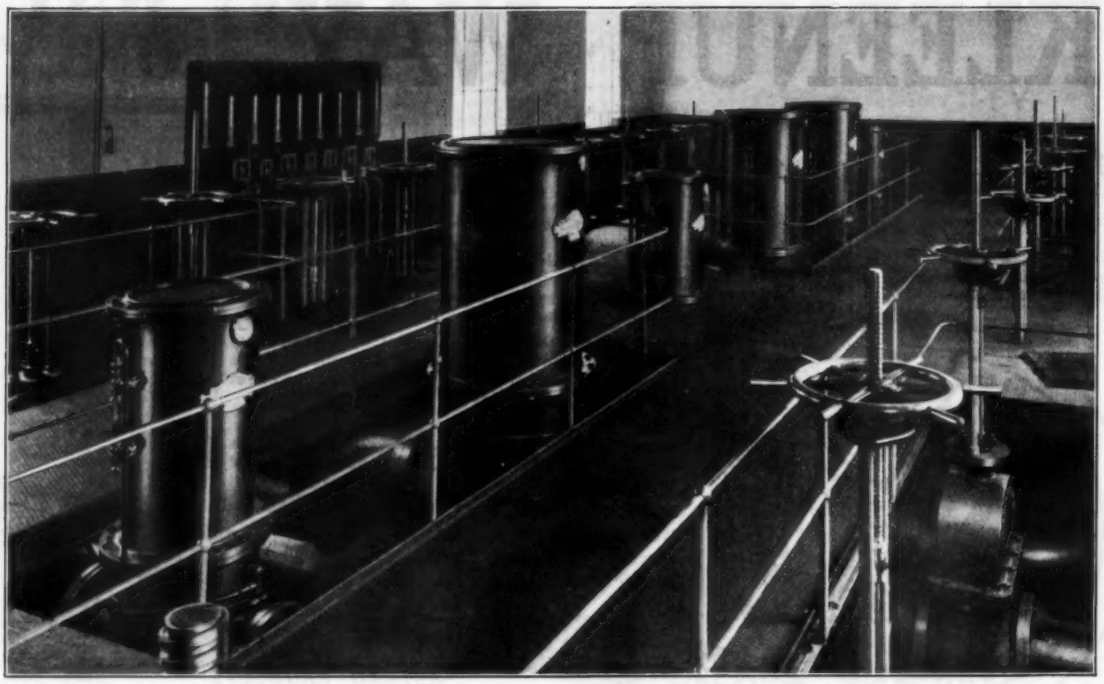
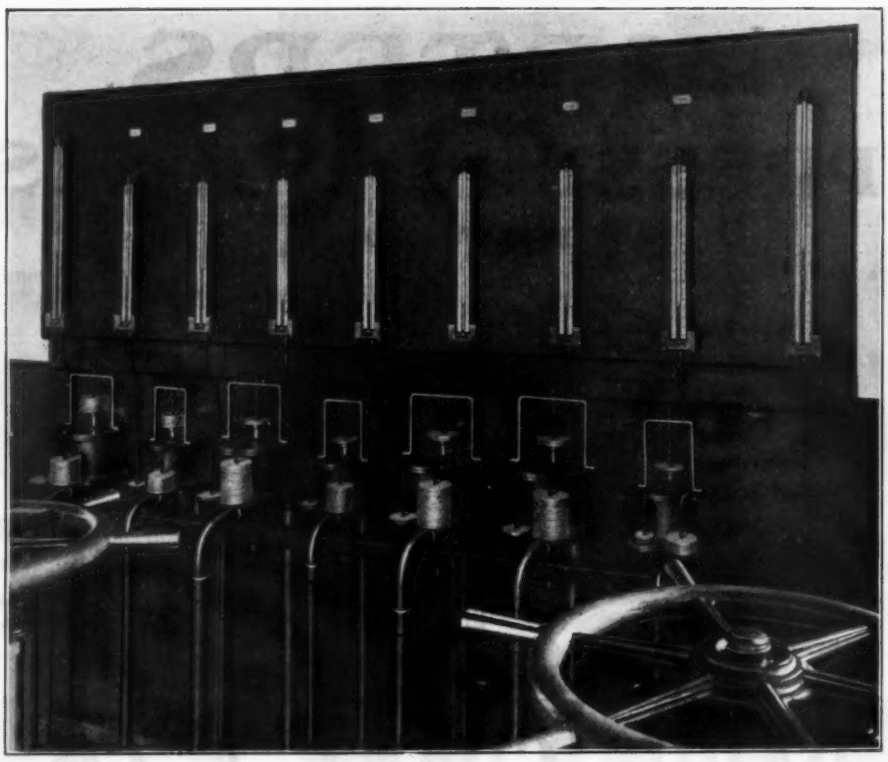


INSTALLATION OF SEVEN STATION GOVERNORS, CONTROLLED BY PILOT GOVERNORS ASSEMBLED AT GAUGE BOARD AS BELOW, AT THE BELGRAVE GATE GAS WORKS OF THE LEICESTER CORPORATION—JAMES MITCHELL, ESQ., M.INST.GAS E., ENGINEER.



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INCORPORATED IN PARKINSON & COWAN (GAS METERS) LTD.

TERMINAL HOUSE, LONDON, S.W.1.

Cottage Lane, City Road, LONDON. Iron Lane, Stechford, BIRMINGHAM. Raphael St., Cromac St., BELFAST.

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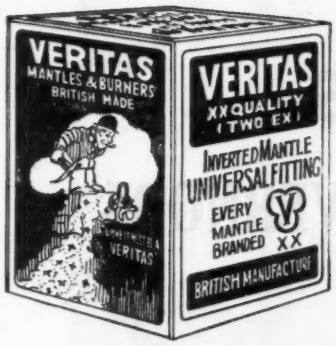

HAVE A REPUTATION FOR

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BRILLIANCY
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BUILT UP ON THE EXPERIENCE OF YEARS AND ARE EQUALLY IN FAVOUR WITH GAS ENGINEERS AND THE PUBLIC.

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NEWCASTLE, CARDIFF, LEEDS, LIVERPOOL, SWANSEA
WORKS: WANDSWORTH, LONDON, S.W.

"HAILWARE" is "PLEASING-WARE"!

With the spoils of war, came great Cæsar;
And he thought of his wife, "What would please her?"
Of the usual old stuff,
She'd had more than enough.
When in doubt, give "Hailware" to appease her!

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HAILWOOD & ACKROYD, LTD.,
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85

Important Gas Company Safeguards its plant with

Peebles

ENCLOSED STATION GOVERNORS

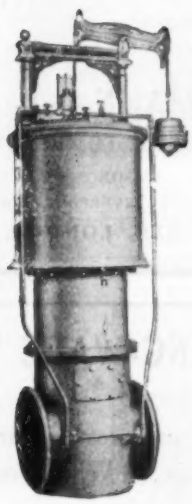

Fig. 29.
Pressure Loading.

The 18 inch, 24 inch, and 30 inch Peebles' Water Loaded Station Governors supplied last year to the Liverpool Gas Company have proved so satisfactory that we have received an order for four more; size 27 inch.

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You can ensure the security of your plant by installing Peebles' Enclosed Station Governors.

The enclosed safety principle applies to the following types of Peebles Gas Governors:— Station, Retort, District, and House Service. These are described and illustrated in Peebles' Gas Governor Catalogue. Copy on request.

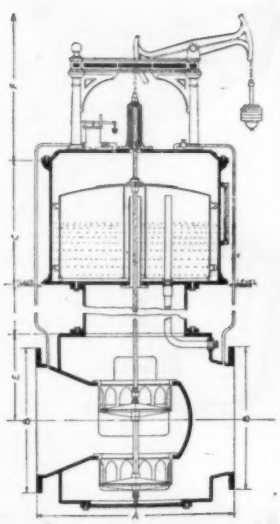

Fig. 28.
Water Loading.

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A comparatively small plant, but one forming an inexpensive but very efficient and self-contained unit. The needs of to-day necessitate being able to supply the varying demands of customers with correctly graded and a clean product.

We make plants from three tons per hour up to any capacity, and incorporate De-Breezing Screens at the bunker outlets.

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140 *Therms per ton of coal,* **400** *B.Th.U. Gas*

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We didn't say it
***Others* said it for us**

" . . . after many years' experience of your retorts . . . In my opinion they are faultless."

" Undoubtedly the best which have been used here."

" I have pleasure in certifying that I have used a great number of your Retorts and Bricks, and have found none superior."

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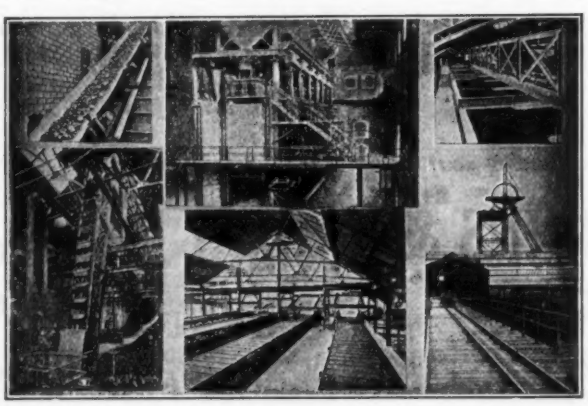

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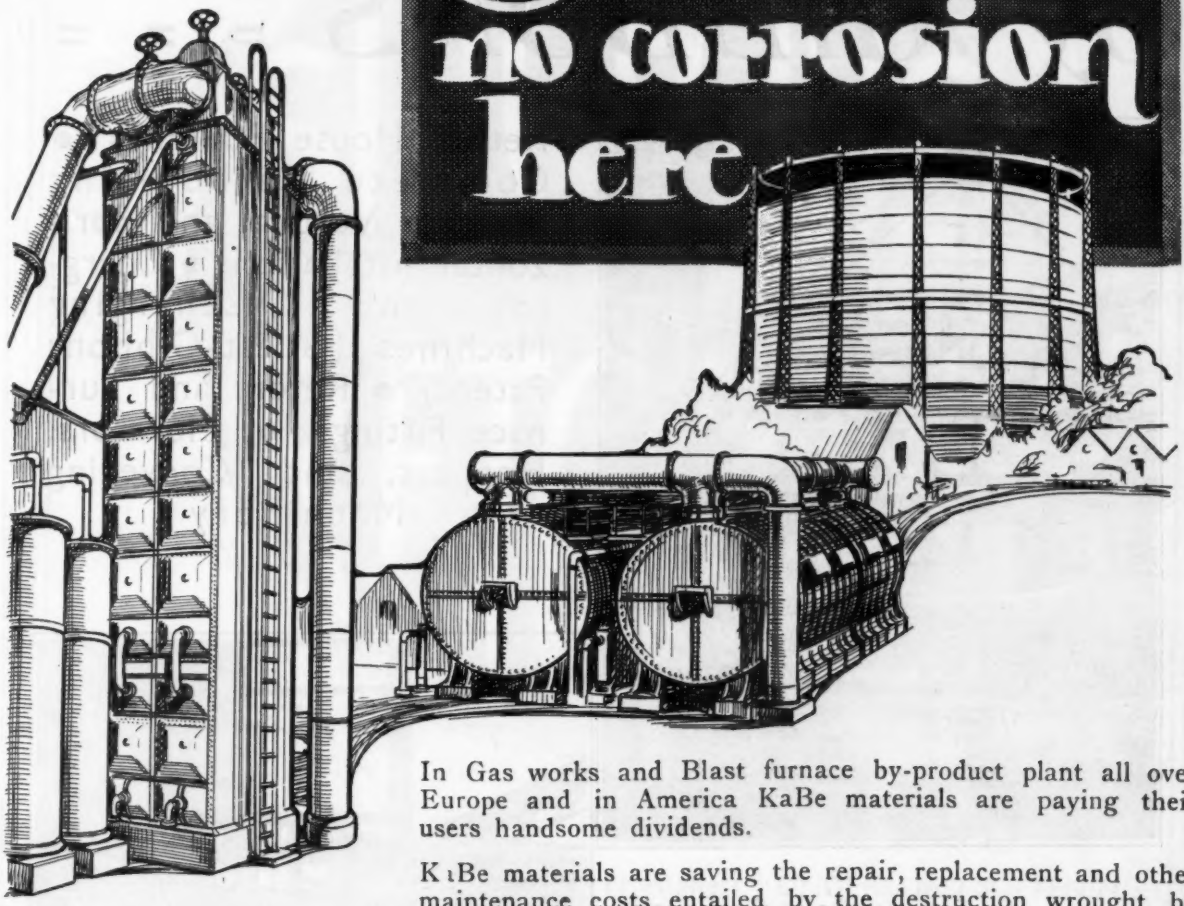
There's... no corrosion here



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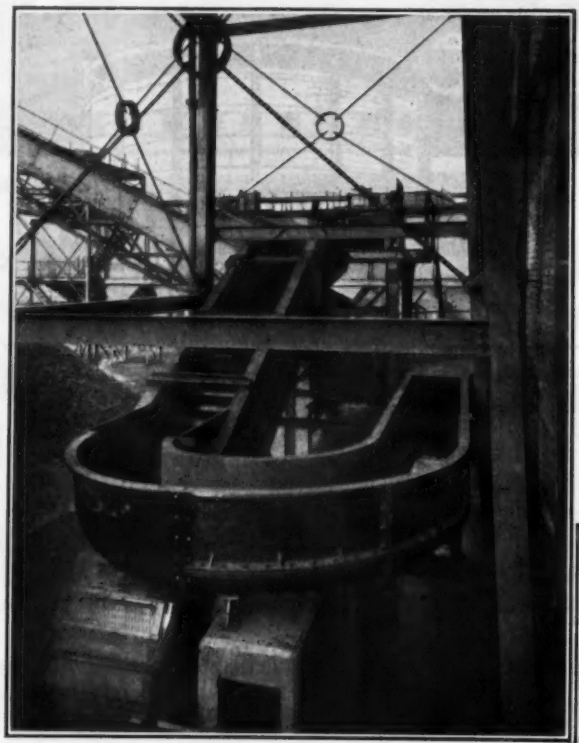

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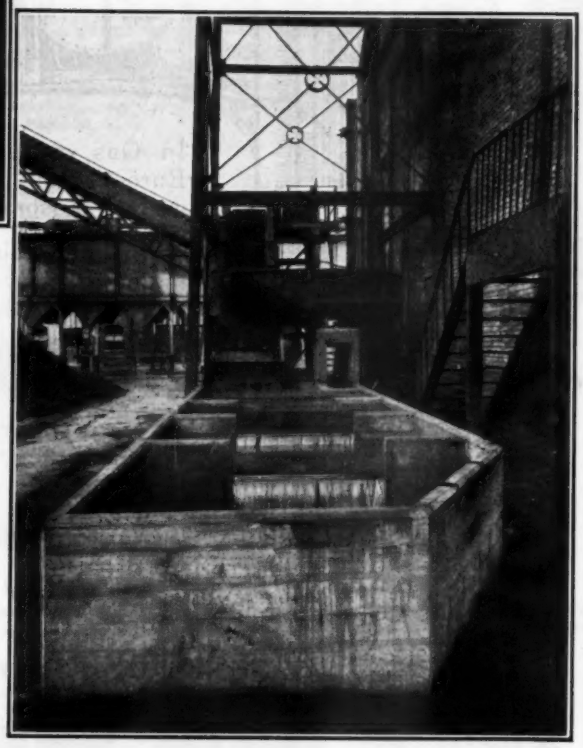

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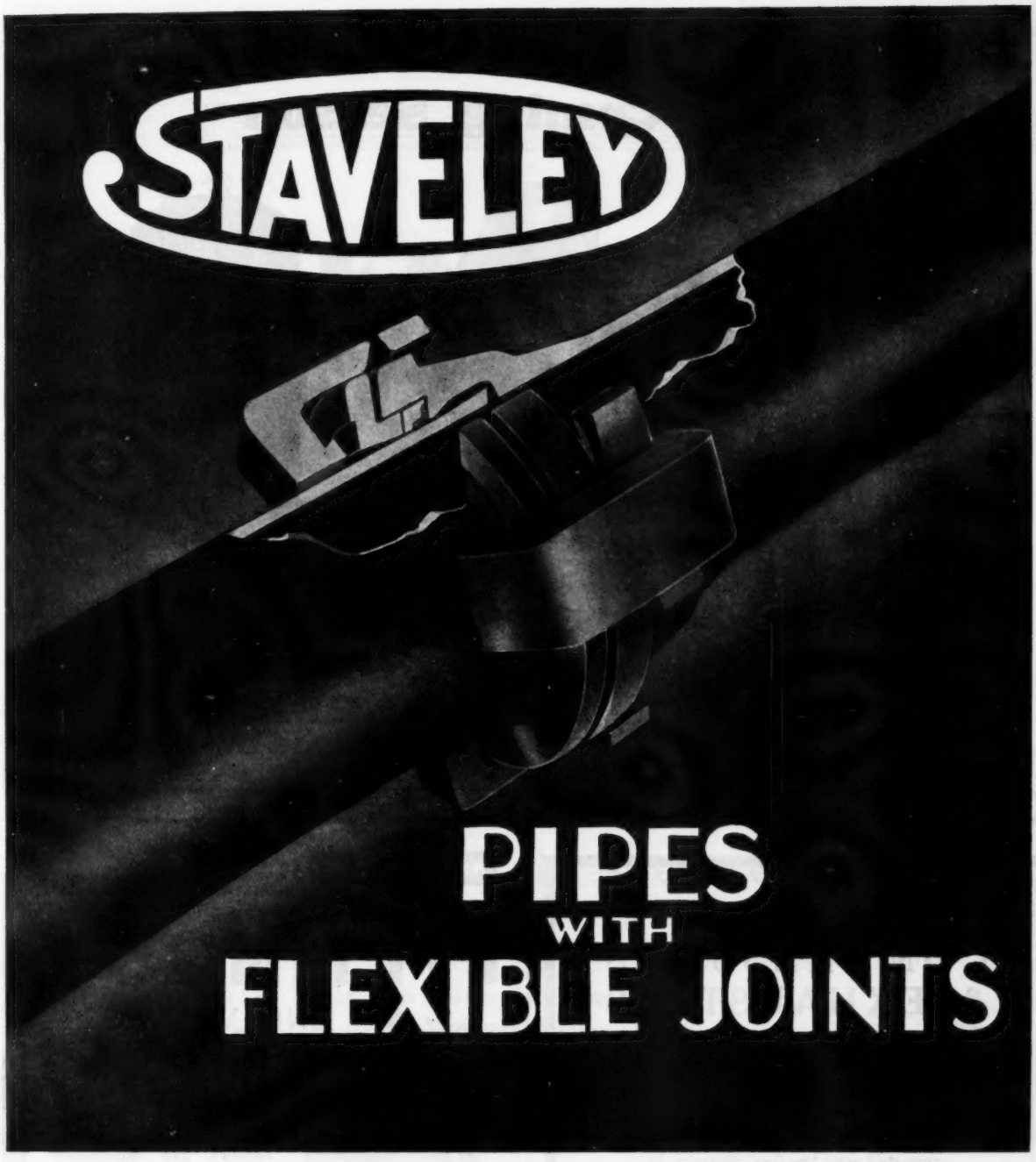

Staveley Sand Spun Pipes represent British Foundry technique at its very highest pitch of perfection. Here are cast iron pipes free from cavities, blow-holes and dirt—pipes that are stronger, tougher, more elastic, and more resistant to shock.

Less joints are required with Sand Spun Pipes owing to their 16 ft. length, but where it is advisable for a main to be flexible, owing to ground conditions, etc., the Staveley Flexible Joint used in conjunction with Staveley Sand Spun Pipes makes an ideal Pipe Line.

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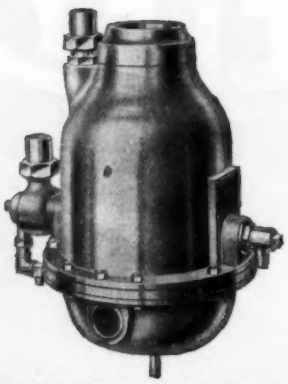

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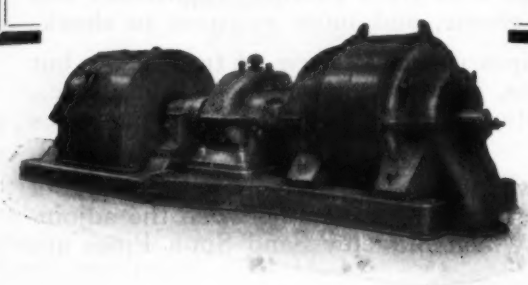

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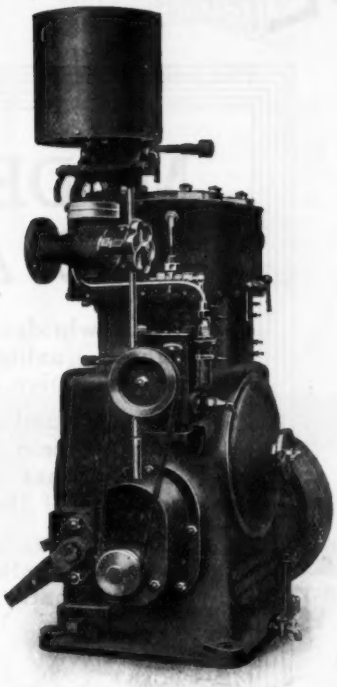

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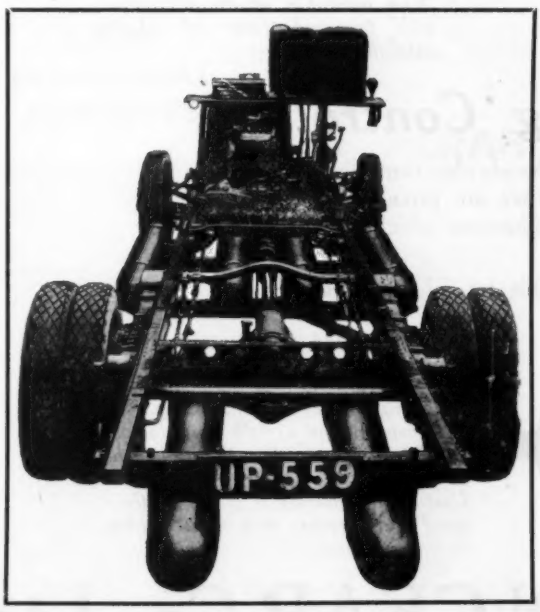

Chassis of Bus showing arrangement of H.P. Cylinders.

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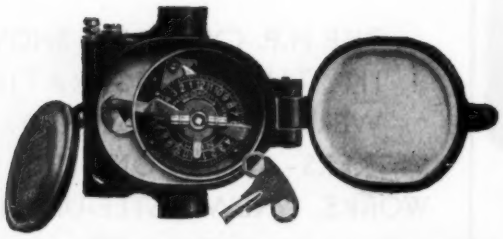

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For suspension or upright harp lamps.
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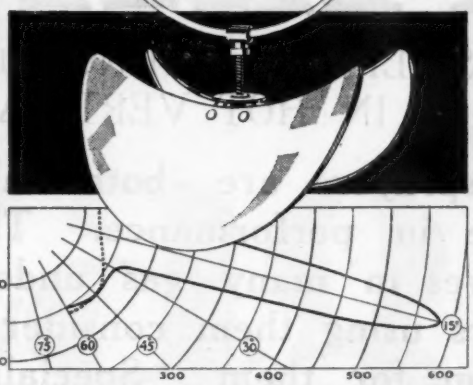

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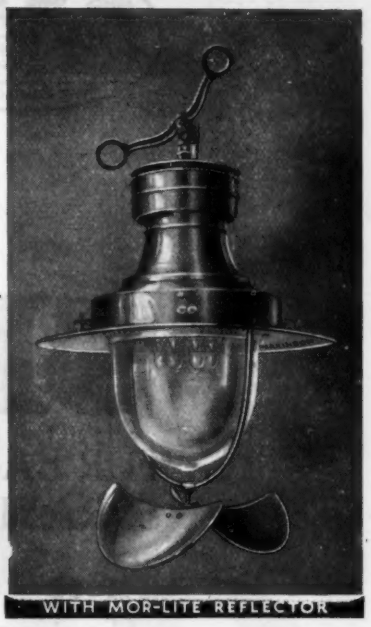
GRAPH SHOWING POLAR CURVE COMPARISONS FOR TWO LIGHT LAMP



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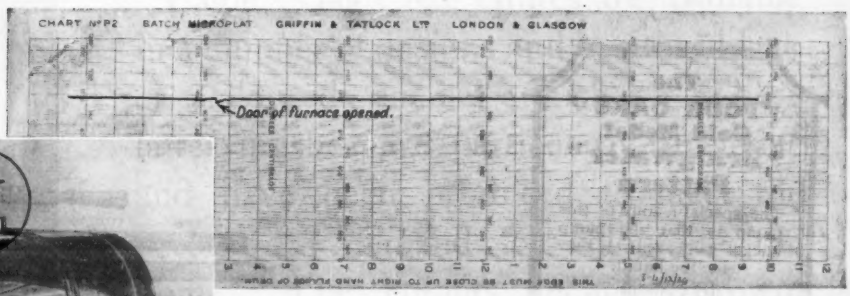
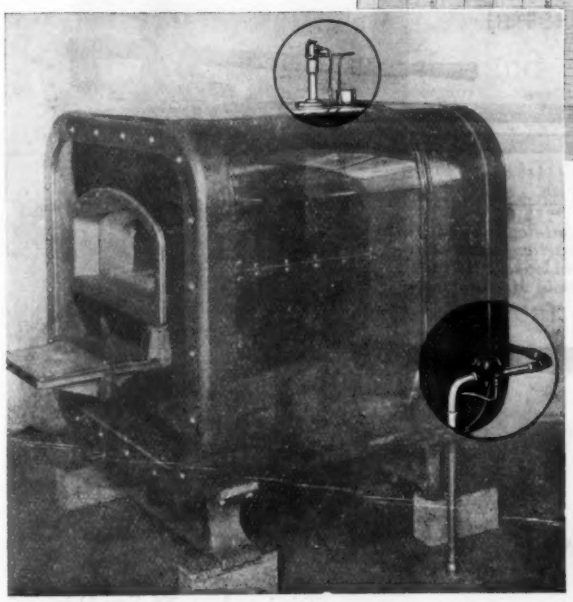
The "PERFECTA" GAS HEAT REGULATOR

(British Patent Nos. 213789 and 254644)

for all INDUSTRIAL PURPOSES





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"Eagle"

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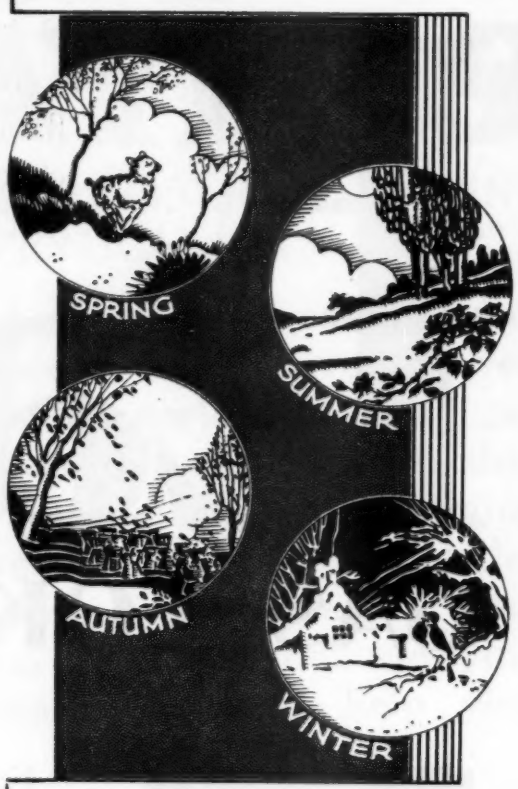

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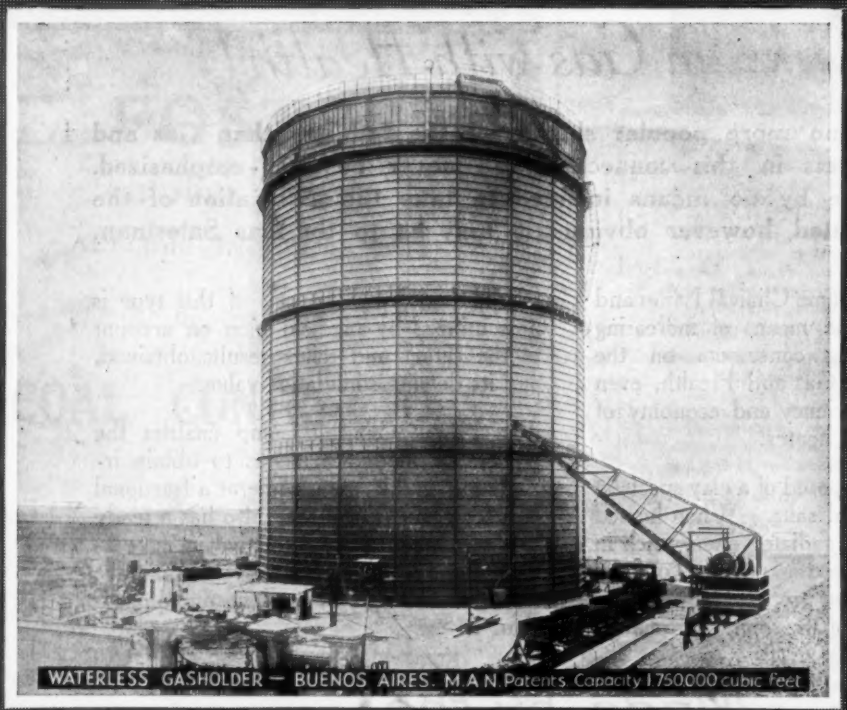

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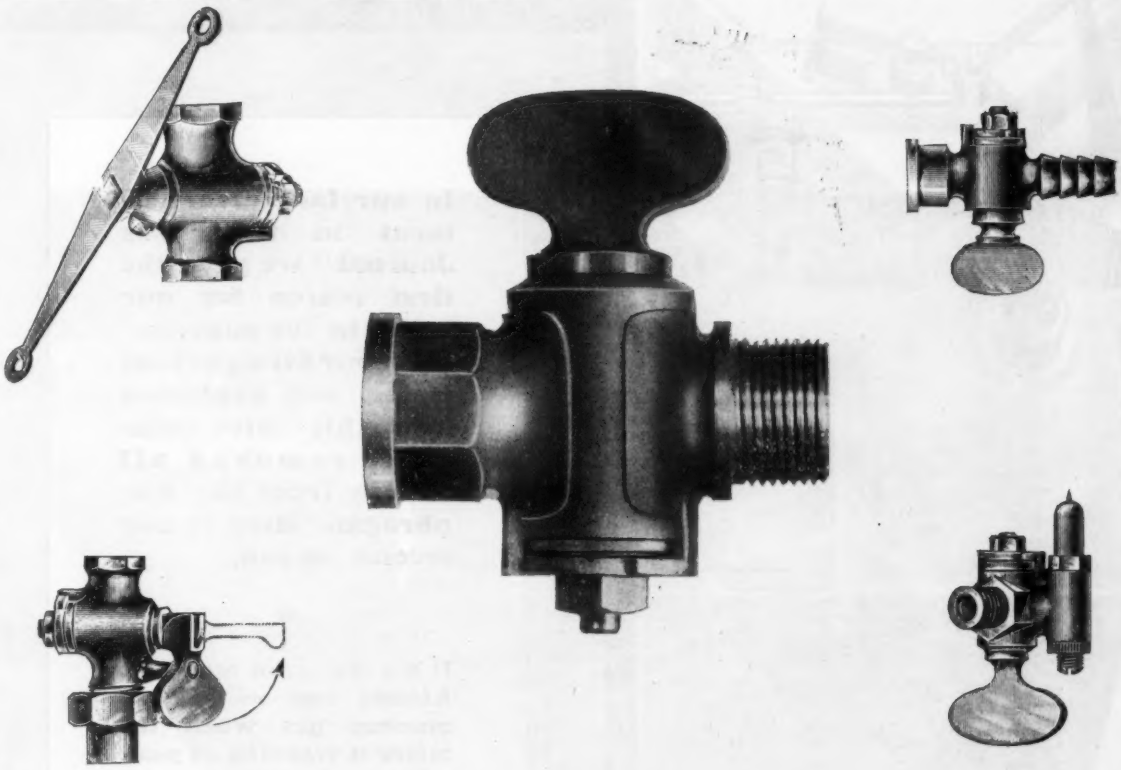

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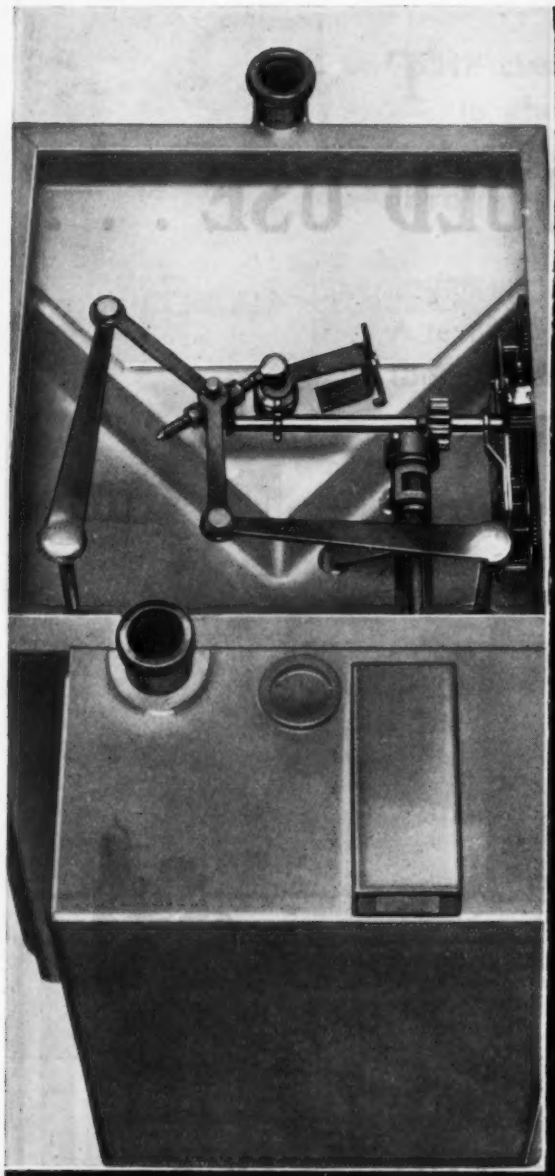

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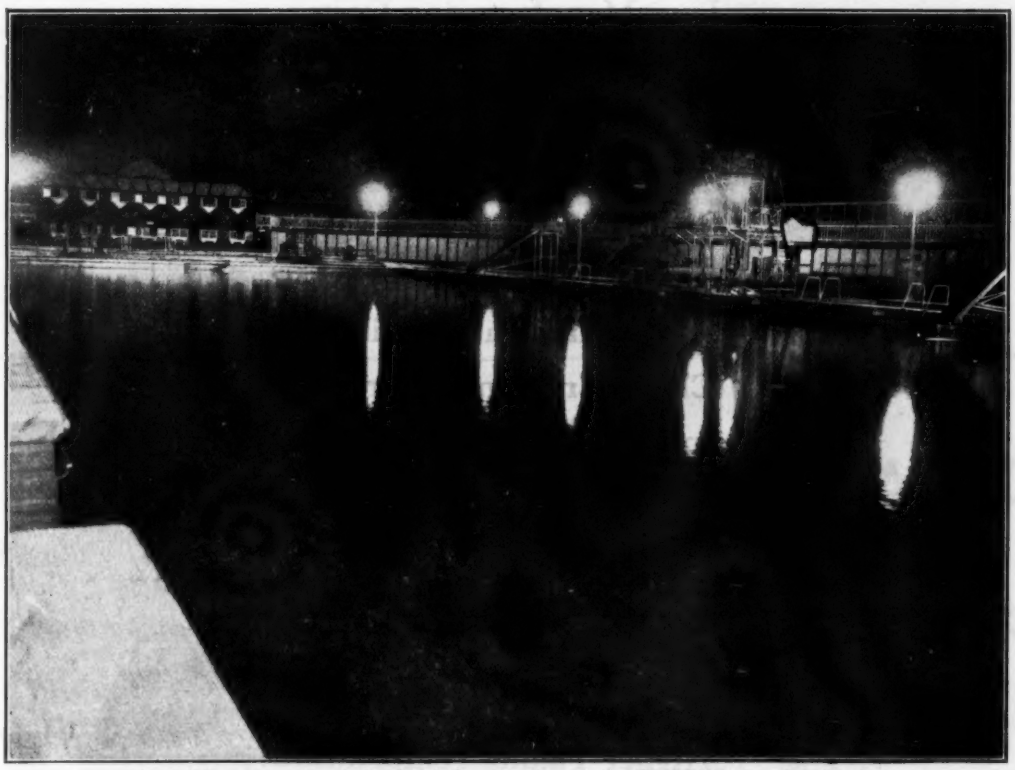

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B.C.G.A. NUMBER

THE GAS JOURNAL

OCTOBER 4, 1933

Vol. 204. 85th Year No. 3672

A Very Special Number

THIS issue of the "JOURNAL" is in more senses than one a Special Number, and one which, we believe, holds a unique variety of interest. First of all, home news. There is our Review of the Annual Conference of the British Commercial Gas Association, and we publish, as in former years, a full report of the proceedings. Then we give our readers, from the pen of the Editor, an account of the Institution of Gas Engineers' tour to Canada and the United States. The party—who are obviously having a splendid time—only arrived in Ottawa on the night of Sunday, Sept. 17; yet we are able to present the story complete with a series of what we think will be regarded wonderful pictures. In itself no mean feat of technical journalism, it is eclipsed by a report, also by the Editor, of the entire proceedings at the Annual Convention of the Canadian Gas Association, staged in Ottawa on Sept. 18 and 19.

Exceedingly Helpful

A LARGE number of delegates were inclined to agree with the speaker at the Bournemouth Conference of the British Commercial Gas Association last week who found it more helpful than any he had previously attended. Those who believe that comparisons are odious at least found it extremely helpful. Everything conspired to make it so. The admirably chosen papers dealt with highly topical subjects; the admirably chosen authors dealt with these subjects in such a way as to invite really useful contributions to the discussions. Mr. Madden's "Manual of Service for the Sales Manager" was supplemented by admirable suggestions from many other quarters, and the sales organization which cannot derive a single wrinkle from a quiet reading of our full report in this issue must indeed be almost perfect.

Mr. Ryan's written paper is also full of interest, but his amplification of it at the meeting, and the discussion which followed, were taken in private session in order to encourage a free exchange of views. It is understood that the Association are taking steps to make a report available to members, and, while we cannot recall from memory any points "not fit for general publication," we do most strongly urge our readers, including those who were present, to take the earliest opportunity of really digesting what was said. Possibly some who had preconceived notions on the subject of publicity, conceived during a lifetime spent exclusively within the Industry, were a little shaken at times, but Mr. Ryan reasoned out his dicta so carefully and convincingly that it would be difficult to argue with him on any of the points he raised. Perhaps, while on the subject of the papers, one of the greatest contributions to the general success of the Conference was that they numbered only two, and were able consequently to be taken, and discussed, in comfort, while the Chairman, with an unerring instinct for recognizing essentials, kept the meeting down to them with precision and infinite tact.

One chief impression which remains is that of sober optimism. Warnings, certainly, that competition is keen and increasing—but so is the efficiency of the Gas Industry. "It can be and is being done" was the prompt rejoinder to any suggestion of difficulty, as, for example, Mr. Madden's quiet, matter-of-fact statement that the last thing he had to deal with before coming to the meeting was to put a scheme for 70 fires before the largest hotel in Cardiff, in which, during the summer, they had been running pipes *for lighting*, making them large enough to deal with fires as well. For the lighting load, indeed, there was a special cheer whenever it was mentioned, and Mr. Frank Jones finally shamed the defeatists, if such exist, by insinuating that a very clever

and insidious attempt is being made nowadays, by whom he does not know, to effect a permeation of pessimism in the Industry which is entirely unjustified except as a means of profiting others.

Unity of Purpose

COMMENTING in last week's "JOURNAL" on the work of the B.C.G.A. during the past twelve months, we said that competition, already keen enough, would become more intense, and that to cope with it we need unity of purpose throughout the Industry—each individual undertaking really determined to pull its full weight for the good of the whole. This need was brought out prominently at the Conference. The programme was, in view of the difficulties which lie ahead, very happily chosen; it linked in such an admirable way the general with the particular. It is not our intention here to enter into any detail concerning the addresses and papers presented at Bournemouth. They are published *in extenso* on later pages, while our Review—which we have been led to believe is a most popular feature of our special B.C.G.A. Number—provides a running commentary on the whole proceedings.

The Address of Mr. Cash indicates the remarkable improvement effected of late years in the standard of efficiency throughout the whole of the Industry's work. Higher efficiency of manufacture and greater mechanization have necessarily entailed a reduction in the number of men required for the manufacture of gas and other products; at the same time, the advances in the means of utilizing these products have resulted in greater employment on the distribution and sales sides, so that on balance the Industry's progress has not been marked by curtailment of personnel. The Industry has developed to a state where every phase of its work must be tackled by experts—expert engineers and chemists, expert salesmen, expert publicity men. The B.C.G.A. provides an excellent example of expert publicity work, the envy of many another industry; and the paper by Mr. Ryan, who writes so vividly and with such a refreshing outlook, is convincing proof that only specialists can deal adequately with publicity and propaganda work.

As was emphasized both by Mr. Cash and by Mr. Madden, however important the work of central organizations may be, and it certainly is important, it must be backed up by keen local endeavour. Mr. Cash speaks as one who has put this idea into practice, and the undertakings which he controls have well merited an enviable reputation for good service. Both the Address of Mr. Cash and the paper by Mr. Madden are packed with useful hints on such matters as showrooms, maintenance of consumers' appliances, training of staff, concentrated sales campaigns, customer relationships, and the development of the industrial load. Croydon, Bournemouth, Brighton—mention of these names in Gas Industry circles conjures up at once visions of alertness and vigorous and successful sales policy. So does mention of Cardiff; and Mr. Madden is specially well fitted to discuss the means for increasing the industrial load.

The Cardiff Gas Company has for long extended a helping hand to other undertakings less fortunately situated. A pioneer in this matter, Cardiff to-day is one of the Industrial Development Centres. Mr. Madden does not confine his remarks to sales of gas to industry in describing the methods of his Company to defend and develop business; and what he has to say about the desirability of affording the prepayment consumer service equally good as that given to the ordinary consumer is well worth underlining. Only a week or two ago, referring to the latest Board of Trade Return relating to authorized gas undertakings, we pointed to the fact that all additional consumers during 1932 were prepayment—proof if, indeed, any be needed, that our Industry does serve the whole community with an essential commodity. In Mr. Madden's own words, "By the recognition of the axiom that the slot consumer is entitled to exactly the same immediate and courteous service as the ordinary consumer, we have endeavoured to foster and increase his goodwill."

There are, as we have said, many lessons to be learned from the Bournemouth Conference of the British Commerial Gas Association. Above all things, however, the Conference showed with what certainty the Association has established the right to have the full support, enthusiastically given, of every single gas undertaking in the land.

Service and Cheap Gas

ONLY one point verging on the controversial was raised in the discussion on Mr. Madden's paper. Mr. Madden had stated that cheap gas without service will not get consumption. Mr. Whimster retorted that dear gas with the best service in the world will not get anywhere. While Mr. Whimster's ideal, of course, is, like everybody else's, service and cheap gas, let us examine the question for the moment in the light of service or cheap gas. Take, for example, the cost of all Barnet's "free services" as detailed in the Presidential Address—0·206d. per therm sold—and imagine that Barnet decides in future to give no free service. The average Barnet consumer, we find, uses 154 therms in the year, so that his quarterly account will be approximately 8d. lower if the full saving on free service is passed on to him. A rough and ready calculation, we know, but will this sum of money, or the equivalent on higher or lower consumptions, make a great impression, and will he spend this amount, or even part of it, on increased gas consumption? We opine that, having once tasted the sweets of service, or heard of others who get it, he will be hard to convince that the lower price of gas is full compensation. In fact, his ideal, as must be that of every gas undertaking, will be service *and* cheap (and good) gas.

Co-Operative Working

WE are particularly interested in the speech of Sir David Milne-Watson, Chairman of the Folkestone Gas Company, at the Company's half-yearly meeting, in that he refers to the results to date of the undertaking's association with the South-Eastern Gas Corporation. We never had any doubts that this association would enhance the service which the Company could offer to the consumer, because it places at disposal vast technical and other resources. Sir David states that one result is a favourable coal contract, and that the coal now purchased is dry-cleaned and of greatly improved quality. Carbonization of such coal has, of course, had its effect on the local coke market; and our readers will note this. More coke has been sold, and for the first time the entire output has been disposed of in the Company's area of supply. The local coal merchants quickly realized the improvement in coke quality, and in Sir David's words, "they are co-operating with the Company in an enthusiastic way to market this commodity. Hitherto Folkestone coke has been sold in large quantities outside our area of gas supply, and to fulfil local requirements the merchants have obtained imported coke. The Gas Industry and the coal merchants have united in altering this old uneconomic system to the benefit of all concerned; and as a result we are enabled to make a reduction of price in the case of coke for boilers and domestic fires as compared with last winter." Great success, by the way, has attended the sale of coke in small paper bags.

Sir David explains that already the system of central buying has brought about economies. Equally important is the fact that the whole of the vast organization of the Gas Light and Coke Company is at hand to assist the subsidiary companies in any direction in which expert help may be required. As an example, he says, should it be necessary to consider a particular scheme for the improvement of the manufacture or the distribution of gas, it is now possible to have it examined and advised upon by men of great experience in such matters who would not otherwise be available for this purpose. Further, should the assistance of a certain type of mechanic be required to enable the Company to carry out the installation of a special form of gas using apparatus in a

factory, it is possible to draw upon the extensive resources at the command of the parent body. All this means better service to the consumer; and only by good service can we hope to cope with competition and extend our business.

Low-Temperature Carbonization

LAST week we commented upon the scheme for the production of oil and smokeless fuel put forward by the South Wales Industrial Development Council. We questioned whether this scheme might be regarded at this stage rather as a flight of fancy, emphasizing, however, that the Gas Industry must study the scheme and recognize its significance. This South Wales project must not be taken to imply that low-temperature carbonization is all "fancy." There are many facts to be considered. According to Dr. J. G. King, during 1932 about 220,000 tons of coal were carbonized in Great Britain by processes of low-temperature carbonization. Low Temperature Carbonisation, Ltd., operating the "Coalite" process, have plants situated at Barugh and Askern. The South Metropolitan Gas Company have a "Coalite" plant operating at East Greenwich. The total capacity of these three plants is 322,000 tons of coal per annum, capable of producing 225,000 tons of smokeless fuel, 26,000 tons of tar, 800,000 gallons of motor spirit, and 1290 million c.ft. of gas. The "Coalite" being produced is finding a ready market, and it is of considerable importance to remember the remarks of the President of the South Metropolitan Gas Company in regard to "Coalite" at the last general meeting of his Company. He said: "We have, however, proved one thing, and that is that there is a market for the main product, and the curious thing, too, is that it is not appealing in the manner we had imagined to the wealthier and more exacting users of the domestic fireplace. A big demand for it has developed among the less affluent classes of fuel users as a substitute for coal." The Admiralty are taking an interest in fuel oil from low-temperature oil, the Air Ministry has placed a contract for aviation spirit from low-temperature tar and gas, the Government have stabilized the preference on home produced light oils for a number of years. The Fuel Research Board have been examining the possibility of producing low-temperature products in narrow brick retorts, and according to the Director of Fuel Research "it would appear that there has now been evolved at the Fuel Research Station a retort which is low in capital cost, easy to work with any type of coal suitable for carbonization, and which will give good yields of products of satisfactory quality." The most important low-temperature operating company showed a credit balance for 1932.

We have set out the above list of somewhat unconnected but important facts because we feel that the time has arrived when the Gas Industry must face anew its attitude towards low-temperature carbonization. We do not presume to state that the Gas Industry should adopt low-temperature carbonization, but we do urge that the Industry should make a careful examination of the present position. The last few years have materially improved the position of low-temperature carbonization. It has been established that there is a good market for high-priced smokeless fuel of a free burning nature as a substitute for house coal. The engineering difficulties associated with the process of low-temperature carbonization are well on the way to being solved. The combination of a good market for the fuel, a plant of reasonable capital cost, and a degree of price stability for the liquid products has placed the commercial success of low-temperature carbonization within the field of practical possibilities. It is a matter of supreme importance for the Gas Industry to decide whether another carbonization industry is to arise, supplying domestic fuel to gas consumers, and possibly supplying gas in bulk to gas undertakings, or whether the Gas Industry is to broaden its scope by supplying its customers with low-temperature free burning coke for the open fire, a harder coke for hot water heating, and gas for heating, cooking, and lighting.

It must be remembered that present-day processes of low-temperature carbonization are also gas-making processes. Dr. Sinnatt, in his recent William Young Memorial Lecture, indicated that in the narrow brick retort process anything up to 50 therms of gas per ton of coal could be produced at the same time as first-quality smokeless fuel. This gas is of high calorific value and suitable for mixing with steamed vertical retort gas or lightly carburetted water gas. The first question which may be raised in connection with the possibility of the Gas Industry's participation in low-temperature carbonization is the effect which it would have on the present sale of gas coke. It must be accepted at the outset that the field which is being aimed at is the 30 million tons per annum of coal used in domestic hearths. It is further to be remembered that this special fuel would be sold at prices appreciably above coke prices. If in time the demand for a more combustible fuel spread to hot water and central heating boilers—as some well-informed investigators on low-temperature fuels think—it might help to stem the drift towards high-priced anthracite and semi-anthracite fuels, which, by reason of their greater flexibility, lower ash content, and greater bulk density are finding increasing favour in some parts of the country.

The Gas Industry cannot afford to regard with complacency the attack on all sides of its present coke position. Low-temperature coke for the open fire; low-ash, dry, and well-sized coke for central heating from the coke oven plants; natural low-volatile coals for the domestic hot water boiler—all are sources of alternative supply. Much has been done by the Industry to improve its coke position, but a very great deal more needs to be accomplished. First and foremost, we suggest that what is needed is a careful and impartial review of the present position of the methods of producing an improved domestic smokeless fuel with all the attractions of coal and without its disadvantages, which the public can buy without needing to install special grates to burn the fuel. If a case can be shown that there is a widespread demand for this type of fuel, and if it can be shown that it can be produced at an economic figure on a reliable type of plant, then the Gas Industry would seem to be the natural suppliers of this smokeless fuel.

Is this not a matter upon which the Institution of Gas Engineers, through its Research or some other Committee, should give a lead to the Industry?

The Salesman on the Hearth

THIS is the season when thoughts are turning towards the various educational evening classes and other courses of training. The importance which these educational schemes have on the success of the Industry cannot be over-estimated. It is to be remembered that for every consumer the gas manager sees, the gas fitter sees fifty. Each fitter is a "salesman on the hearth." His interest in the service he is performing, his helpfulness, and his manner go more to obtaining a satisfied consumer than reading many advertisements on the values of gas. Therefore it pays that each man in the Gas Industry who is in contact with consumers shall have had the opportunity of becoming proficient in his own job, while also having had the time to obtain some general knowledge of the Industry. At this time of the year, when lecturers are beginning to think of lecture courses, students of enrolment, let the Industry acknowledge that it is greatly indebted to those who spare time in conducting such classes. Further, the managements of our undertakings should see that every encouragement is offered to their service staffs to attend education schemes. It must be remembered that the average level of what we may term "technical intelligence" is higher than it was even ten years ago. This is attributable to many causes—the teaching of more science at school, the explanation of science in the daily Press, the mechanization of industry, the development of machinery in the home, wireless, motor cars, and so on. All this means that the consumer can think intelligently. To all those about to embark on educational courses the "JOURNAL" offers its best wishes.

PERSONAL

MR. R. W. BROADHEAD.

Mr. R. W. Broadhead, Chairman and Managing Director of Messrs. Broadhead Constructions, Ltd., Structure House, Stretford, is resigning those offices on his appointment to an important post with the South Metropolitan Gas Company.

Mr. Broadhead also relinquishes the position of Local Director and Ironworks Sales General Manager of Messrs. Newton Chambers & Co., Ltd., of Thorncliffe. On Wednesday, Sept. 20, Mr. Broadhead was the recipient of a silver cigarette box from the staff of Messrs. Newton Chambers—a mark of appreciation of their association with him and of all good wishes for the future.

* * *

MR. R. J. REW.

His many friends in the Industry will be pleased to hear that the Sheriff-Designate of the City of Exeter is Mr. Reginald John Rew, who for the past quarter of a century or more has been responsible for the commercial side of the business over a very wide area of Messrs. Willey & Co., Ltd., the well-known engineering firm of that city. Now in his 57th year, Mr. Rew has been a Freeman of Exeter since 1911.

Educated at Exeter School, Mr. Rew joined Messrs. Willey's in September, 1893, being articled to the firm as a gas engineer. Ten years later *Willey's Weekly*, the periodical published by the Company, devoted to Mr. Rew the space allocated to prominent personalities in the business. He was described as one of the most energetic and progressive members of the staff. His travels on the firm's behalf have taken him so far afield as Antwerp, Berlin, and Moscow, it was stated, and he has secured practical experience of both the engineering and commercial sides of the Company's business. Since the publication of that little article Mr. Rew's travels on business have taken him also to New York and the Eastern States of America.

Among other important posts held by Mr. Rew in the business world is the Managing Directorship of the Devon Gas Association, which controls a number of works in Devon and Dorset, while he is also a Director of the Budleigh Salterton and Saltash Gas Companies.

A Freemason since the year 1904, Mr. Rew is a Past Provincial Grand Deacon of the Province of Devonshire, and he is at the present time a member of four Lodges. From 1895 onward for many years he was a member of the "A" Company of the old 1st Rifle Volunteers. He is a member of the Exeter Golf and Country Club and the Exeter and County Club, and not long ago was a regular player for Exeter Cricket Club, usually assisting the Home Team.

His son, Mr. Ronald F. Rew, served his apprenticeship with Messrs. Willey & Co., and is now the Engineer to the Devon Gas Association, whose headquarters are at Exeter.

* * *

Mr. H. D. MADDEN, Engineer and Manager to the Cardiff Gas Light and Coke Company, has been elected to serve on a Special Committee set up by the Industrial Development Council of South Wales and Monmouthshire to investigate and formulate a definite scheme of hydrogenation and low-temperature carbonization of coal.

* * *

Mr. W. FRIEBEL, Manager of the Prague Works of the Imperial Continental Gas Association, completed his 50 years' service in the Gas Industry on Sept. 1, when he was presented with a suitably inscribed gold watch.

* * *

In accordance with the wishes of the shareholders, a picture of Mr. T. COLEMAN has been hung in the Board Room of the Looe Gas Company, in recognition of his good work as Secretary and Chairman. At a meeting of the Directors on Sept. 23, Mr. Coleman was complimented on his successful government of the Company.

* * *

Mr. A. P. KELSEY, since 1908 Special Representative of Messrs. Falk, Stadelmann, & Co., Ltd., among gas undertakings in the South and West of England, has been appointed District Sales Manager to the firm.

Correspondence

Coal Gas as a Motor Fuel.

SIR,—I would refer to your editorial paragraph in last week's issue of the "GAS JOURNAL" headed "The Will to Win." Might I point out that the capital and delivery costs incurred to transport a supply of bottled gas can be reduced very much below the figures quoted by delivering a number of cylinders bolted together in a suitable frame and connected through one reducing valve.

For comparative costing purposes it is well to keep in mind that, although a capital cost of, say, £100 for six cylinders and one reducing valve appears high, the interest on this expenditure, if spread over an annual consumption of 100,000 c.ft. represents no more than 1s. per 1000 c.ft.

Another point worthy of note is that when supplying bottled gas there is no expenditure necessary on meters and main connections thereto.

"ENGINEER."

Sept. 29, 1933.

THE NEWS OF THE WEEK

Alteration of Calorific Value.—The Haverfordwest Gas Department give notice that after Jan. 1, 1934, the calorific value of the gas supplied will be 500 B.Th.U. per c.ft. The present declared value is 420 B.Th.U. per c.ft.

The Inaugural Ceremony of the 1933-34 Session of the Sir John Cass Technical Institute will be held on Friday, Oct. 6, at 8.15 p.m., when Sir Robert A. Johnson, K.B.E., M.A., Deputy Master and Comptroller of the Royal Mint, will give an address.

The Council Chamber at the offices of the Hinckley Urban District Council has been re-decorated and a new gas lighting scheme installed. At the monthly meeting of the Council last week the Councillors were agreeably surprised to find that the lighting of the chamber is now effected by means of lamps suspended from the ceiling. Mr. A. B. Britton, the Gas Manager, who was responsible for the installation, was warmly congratulated. The lights are switch controlled.

The New Benzole Plant erected at the Padiham Gas-Works, it is stated, will produce 20,000 gallons of benzole for motor spirit each year. The annual report shows the expenditure was £24,060, and the income £30,894. Interest on loans and sinking fund charges absorbed £4486, leaving a net profit of £2347, against £779 last year.

The Seventy-Second Annual Report of the Directors of the South Australian Gas Company for the year ended June 30, 1933, shows that the profit, before providing for special purposes fund and after paying interest, amounted to £103,862. This has been applied in the following manner: In paying a dividend for half-year ended Dec. 31, 1932, at the rate of 4% per annum; and for half-year ended June 30, 1933, at the rate of 4½% per annum; and in transferring to special purposes fund the sum of £38,245. This leaves a balance to be carried forward in profit and loss account of £6117.

THE NEWS—continued.

Folkestone's Good Results.

Working of the South-Eastern Gas Corporation.

Moving the resolution for the adoption of the Report and Accounts at the half-yearly meeting of the Folkestone Gas Company, the Chairman, Sir David Milne-Watson, said that the expenditure on coal had been reduced by £2781 as compared with the corresponding period of last year. This was an important figure, for it is just over one-tenth of the total manufacturing expenditure. "It is true," he continued, "that we have used less coal, by reason of a larger make of water gas, but it is particularly gratifying to note that as an outcome of our new association with the South-Eastern Gas Corporation, Ltd., we have been able to make a very favourable coal contract. Moreover, the coal we have purchased is entirely dry-cleaned by the latest scientific methods and greatly improved in quality, which in turn has resulted in the manufacture of a better coke. There has been an increase in the actual quantity of coke sold as well as in the amount used on the carburetted water gas plant, the latter being necessary in order to take advantage of the additional capacity obtained from the re-modelling of this useful gas-making plant. Moreover, the whole of the coke that has been sold to the public has been disposed of locally and not outside our area of supply as hitherto.

"The Directors recommend the payment of a dividend at the rate of 7% per annum, the same rate as last half-year.

"The South-Eastern Gas Corporation was, in a way, founded upon this Company. It has already been found possible to establish a system of central buying by which economies are ensured; and by the appointment through the agency of the Corporation of the Gas Light and Coke Company as Managers, the whole of the organization of that great undertaking is available for the purpose of assisting any or all of the subsidiary companies in any direction in which expert help may be required. As an example, should it be necessary to consider a particular scheme for the improvement of the manufacture or the distribution of gas, it is now possible to have it examined and advised upon by men of great experience in such matters who would not otherwise be available for this purpose. Further, should the assistance of a certain type of mechanic be required to enable the Company to carry out the installation of a special form of gas using apparatus in a factory, for instance, it is possible to draw upon the extensive resources at the command of the parent body.

"In many ways indeed will the fusion prove to be to the benefit of the Folkestone Company, and it is hoped that as time goes on this will be reflected by an increase in the business of the Company and a reduction all round in costs, with the consequent advantage to the consumers in the shape of a lower price of gas.

"The improvement in coke quality which has resulted from the use of dry-cleaned coal has had a beneficial influence on our coke market. The local coal merchants, with whom we have cordial relations, have quickly realized that Folkestone gas coke has been greatly improved in quality, and they are co-operating with the Company in an enthusiastic way to market this commodity. Hitherto Folkestone coke has been sold in large quantities outside our area of gas supply, and to fulfil local requirements the merchants have obtained imported coke. The Gas Industry and the coal merchants have united in altering this old uneconomic system to the benefit of all concerned; and as a result we are enabled to make a reduction of price in the case of coke for boilers and domestic fires as compared with last winter.

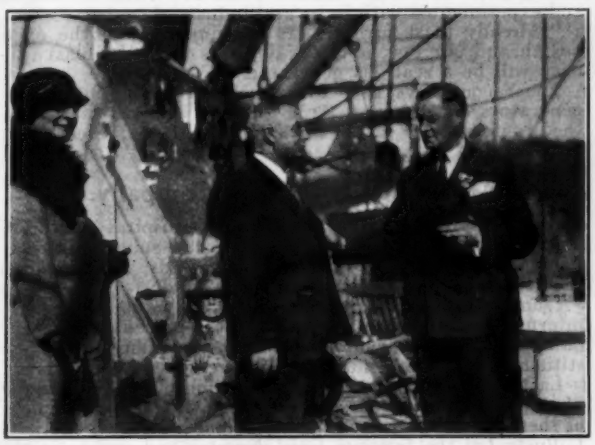
"Another development with which we experimented last season, and which proved to be so successful that we are extending it this winter, is the sale of coke in convenient paper bags, which can be obtained from the gas-works or from retailers in the town.

"We have taken the opportunity during the half-year to re-model our showrooms in Folkestone and have made them more attractive and serviceable. That our new sales policy has not been unsuccessful is reflected in the figures of apparatus sales for the half-year now past, which show a 70% increase as compared with the corresponding period of last year.

"I am gratified to report that the Folkestone Corporation have entered into a five-year contract for the supply of gas for public lighting, and they have taken energetic measures to improve the existing poor standard of illumination, by the installation of modern lanterns and fittings.

"In conclusion I should like to say that it is with great pleasure we welcome the addition to the Board of Mr. Henry Woodall. Then I am sure you will wish me to say how much we appreciate the work undertaken and carried out by all those employed by the Company. In particular, I would like to make special mention of Mr. Diamond, our Engineer and General Manager, who has now completed a full year with us since his appointment and has fully justified the confidence we had in him when he was appointed."

When Presidents Meet.



President M'Nair, President Tarratt, and Mrs. M'Nair, on board the "Duchess of York."

Malvern U.D.C. Not to Sell Gas Undertaking.

New Scale of Charges.

At a meeting of the Malvern Urban District Council last week, it was reported that a letter had been received from the Colwall Gas Company inquiring whether the Council would be willing to consider an offer for the purchase of the Gas Undertaking, and if so on what terms. The Committee had recommended that the Company be informed that the Council were not prepared to consider the sale of the gas undertaking at the present time.

Mr. Pitt (Chairman of the Gas Committee) said he hoped the time would never come when the Council would be so stupid as to think of selling the gas undertaking. Another member said it was very gratifying to know that a group of hard-headed business men were anxious to purchase the Council's gas undertaking, but no doubt they believed that money was to be made.

The Council also approved of the following new scale of charges:—Within the Urban District: For gas consumed through ordinary meter, 9½d. per therm, less 5% discount for payment before a certain date; for gas consumed by gas engines, 9½d. per therm, less 15% discount for prompt payment and meter rent in addition; for gas consumed through prepayment meter, 10d. per therm without free cooker, 10·5264d. per therm with free unpacked cooker, and 11·112d. per therm with free packed cooker.

Outside the Urban District: For gas consumed through ordinary meter, 11·1d. per therm, less 5% discount for prompt payment; for gas consumed by gas engines, 11·1d. per therm, less 15% for prompt payment; for gas consumed through prepayment meters, 11·112d. per therm without free cooker, 11·7686d. per therm with free unpacked cooker, and 12·5d. per therm with free packed cooker. The increased charges are to be brought into operation as from the next quarterly readings, except in the case of prepayment meters, and that to be Sept. 30.

Industrial Gas in Soviet Russia.

The majority of the new plants in the Soviet Union have been operating on coal, timber, peat, or liquid fuels, and the difficulty of securing these fuels in sufficient quantities to cover the needs of all the new plants has necessitated the search for a new source. Towards this end a new trust was organized in Moscow last year for the planning and installation of gas generators. This new organization, known as the Gas Generator Building Trust, has had a difficult task, as it has involved the training of workers and engineers, for though gas generators are not unknown in the U.S.S.R. work in connection with them has in the past been carried out entirely by foreign firms.

In an interview published in the Soviet Press, Mr. I.

THE NEWS—*continued.*

Zelekoson, head of the financial and planning section of the Trust, said: "This year a research institute has been established at Gorovka in the Donetz Basin, and a second will be opened in Moscow next year. When these are operating satisfactorily we shall be able to start building the first Soviet factory for the production of gas generators. Until the results of the present experiments are available, it will not be possible to start the mass production of gas generators, although several plants are already producing parts of the machines. These are being assembled and experimented with in several industrial centres.

"Already blast furnace gas is being used in the open hearth and our task is to develop this until the blast furnace will be a real gas generator."

The Second Five-Year Plan fixes the production of gas generators at 2000, and Mr. Zelekoson believes that, with the progress so far made, this figure will be achieved.

Mid-Southern Utility Company.

Presiding at the Co-Partnership and Hospital and Benevolent Fund Annual Meetings of the Mid-Southern Utility Company on Sept. 13, Mr. R. W. Edwards, J.P., C.C., in the course of his Chairman's Address, said:

I am firmly convinced that the thing most essential to international peace and progress at the present time is the banishment of suspicion and the co-operation of all constituents—in short a universal co-partnership.

Last year I reminded you in speaking of the application of co-partnership to our own Industry, that the conception of these ideals has to be a personal and individual one, and I illustrated the freedom from disputes and strikes in the Gas Industry as being largely, if not entirely, the outcome of the prevalent acceptance of co-partnership in our ranks. I believe the principle is capable of a very much wider application, and, indeed, I go so far as to say that until it *is* accepted and practised not only in industry generally, but in all our national and international relationships, the "vigorous anti-cyclone" which will establish "fair weather" over all quarters of the globe will be delayed. If this be true we can only be glad and proud that in our Industry, and in the more local associations of this individual Company, we are on the right lines.

I am glad once again to be able to say that, in striking contrast with general conditions, the progress of our own co-partnership affairs continues to be satisfactory. I said last year that none of us would be satisfied unless we could "go forward from year to year breaking fresh ground, creating new records, and extending our business all the time." That ambition has been supported by results in this scheme, at all events, for the number of members, the amount paid in the shape of bonus, and the interest credited on savings, all constitute records once more.

The invaluable work of our Hospital and Benevolent Fund also continues to extend, and I am sure we shall all be ready to compliment the Committee and officers of that fund upon the extraordinarily practical and capable management of the finances. Since the fund commenced in 1917 we have paid over £1000 in subscriptions to hospitals and homes.

The third section of our Welfare work, the Sports and Recreation Club, continues to provide adequate facilities for the Company's employees.

Telling Display at Leicester.

Our photograph is of the stand of the Leicester Gas Department at the Home Life Exhibition, Granby Halls, Leicester, Sept. 6 to 16. Very successful business resulted, and the display was greatly appreciated by thousands of visitors.

Forthcoming Engagements

Oct. 6.—NORTH OF ENGLAND ASSOCIATION.—Autumn Meeting at South Shields.

Oct. 7.—SCOTTISH EASTERN JUNIORS.—Opening Meeting at Dunfermline. Presidential Address of Mr. W. Scott.

Oct. 9.—I.G.E.—Meeting of Joint Lighting Committee, 2.30 p.m., 28, Grosvenor Gardens, S.W. 1.

Oct. 10.—FEDERATION OF GAS EMPLOYERS.—Meeting of Central Committee at 28, Grosvenor Gardens, S.W. 1, at 12 noon.

Oct. 10.—N.G.C.—Central Executive Board Meeting.

Oct. 12.—SOUTHERN ASSOCIATION (EASTERN DISTRICT).—Meeting at 28, Grosvenor Gardens, S.W. 1, 2.30 p.m. Subject for discussion: "Coal Blending."

Oct. 12.—SOUTHERN ASSOCIATION (WESTERN DISTRICT).—Commercial meeting, Rougement Hotel, Exeter, 2.30 p.m. (Committee meeting of the District at 2 p.m.).

Oct. 13.—GAS COMPANIES' PROTECTION ASSOCIATION.—Annual General Meeting, Caxton Hall, 2.30 p.m.

Oct. 17.—I.G.E.—Meetings of Publications Committee, 3 p.m.; Education Executive Committee, 4 p.m., 28, Grosvenor Gardens, S.W. 1.

Oct. 18.—B.C.G.A.—Meeting of Executive Committee at 2.30 p.m.

Oct. 19.—EASTERN COUNTIES GAS MANAGERS' ASSOCIATION.—Autumn Meeting, 28, Grosvenor Gardens, S.W. 1, 2.15 p.m.

Oct. 19.—S.B.G.I.—Meeting of Council in the afternoon.

Oct. 21.—WALES AND MONMOUTHSHIRE JUNIOR ASSOCIATION.—Opening Meeting at Cardiff. Presidential Address of Mr. H. S. Bartlett.

Oct. 27.—MANCHESTER DISTRICT ASSOCIATION.—General Meeting, Midland Hotel, Manchester, 2.30 p.m.

Oct. 30.—LONDON AND COUNTIES COKE ASSOCIATION.—Meetings of Executive Committee, 11 a.m.; Central Committee, 12 noon; Luncheon, 1 p.m.; Annual General Meeting, 2.30 p.m., Hotel Metropole, S.W. 1.

Nov. 2.—MIDLAND JUNIOR ASSOCIATION.—Paper by Mr. F. L. Atkin on "The Design of Town Gas Fired Furnaces."

Nov. 4.—SCOTTISH EASTERN JUNIORS.—Meeting at Edinburgh. Paper on "Automatic C.W.G. Plant."

Nov. 6.—I.G.E.—Meetings of Finance Sub-Committee, 2 p.m.; Membership Sub-Committee, 2 p.m.; General Purposes Committee, 3 p.m.; Council, 4.15 p.m., 28, Grosvenor Gardens, S.W. 1.

Nov. 7-8.—I.G.E.—Autumn Research Meeting, Institution of Mechanical Engineers.

Nov. 9.—S.B.G.I.—Autumn General Meeting, Hotel Metropole, London.

Nov. 14.—I.G.E.—Session at the Public Works, Roads, and Transport Congress and Exhibition, Royal Agricultural Hall, 11 a.m.; Joint Session of the Institution and the Association of Public Lighting Engineers, 3 p.m.

Nov. 14.—I.G.E.—Meeting of Gas Education Committee, 5 p.m., 28, Grosvenor Gardens, S.W. 1.

Nov. 15.—SOUTHERN ASSOCIATION.—General Meeting, Hotel Metropole, London, at 2.15 p.m.

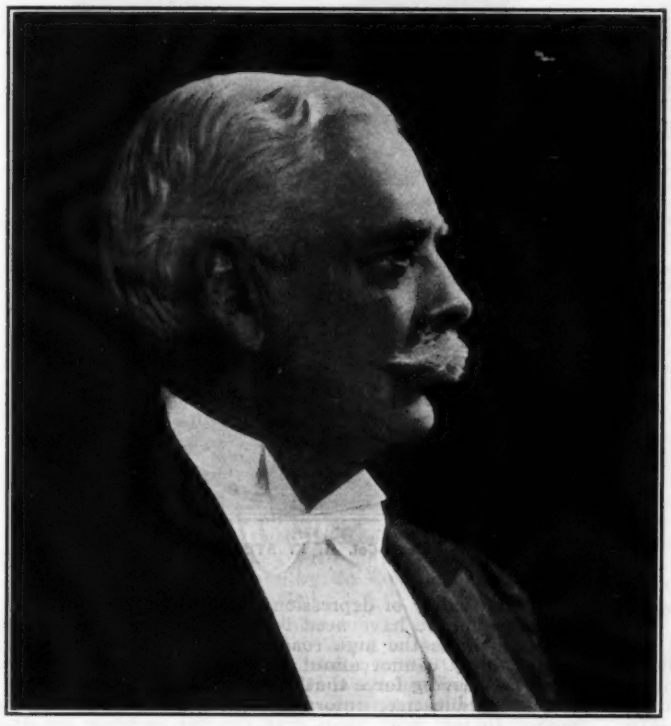
Nov. 25.—NORTH OF ENGLAND AUXILIARY ASSOCIATION.—Half-yearly Meeting at Newcastle. Paper by Dr. G. P. Lishman, F.I.C.

Dec. 11.—I.G.E.—Meetings of Finance Sub-Committee, 2 p.m.; Membership Sub-Committee, 2 p.m.; General Purposes Committee, 3 p.m.; Benevolent Fund Committee of Management, 4.30 p.m., 28, Grosvenor Gardens, S.W. 1.

Dec. 12.—I.G.E.—Meetings of Council, 10 a.m.; Gas Education Executive Committee, 4 p.m., 28, Grosvenor Gardens, S.W. 1.

Dec. 21.—I.G.E.—Meeting of Refractory Materials Joint Sub-Committee, 2.30 p.m., 28, Grosvenor Gardens, S.W. 1.

BRITISH COMMERCIAL GAS ASSOCIATION



MR. WILLIAM CASH, J.P., F.C.A.

Mr. Cash was educated at Haileybury College. On leaving the College he entered accountancy, and became a partner in the firm of Messrs. Cash, Stone, & Co. in 1889. He has been a member of the Council of the Institute of Chartered Accountants since 1908, and was elected Vice-President in 1920-21, and President in 1921-22 and 1922-23. During the war he carried out important work for various Government Departments. He was a member of the Board of Trade Company Law Amendment Committee 1925-26. Mr. William Cash is Chairman of the Bournemouth Gas and Water Company, the Croydon Gas Company, the Barnet District Gas and Water Company, and the South African Lighting Association. He is also a Director of the Brighton, Hove, and Worthing Gas Company, the South Essex Waterworks Company, and other commercial undertakings, and is the immediate Past-President of the British Waterworks Association. He is a Justice of the Peace for the County of Surrey.

The "JOURNAL" Review of Proceedings

At the Twenty-Second Annual General Meeting and Conference

BOURNEMOUTH, Sept. 25 to 27, 1933

President:
Mr. WILLIAM CASH, J.P., F.C.A.

FAVOURED in almost every possible respect by circumstances, success for the big annual event of the B.C.G.A. was inevitable. Hospitality is in the air of Bournemouth. The mass delegation is entertained as easily and as happily as the individual or the family. The prestige of the Gas Company—connecting link between Town and Conference—is of the highest, and in many unostentatious ways its efficiency made large contributions to the smooth working of the visit. Add to this that its Chairman, who was also Chairman of the proceedings, is a past master in the handling of meetings, that the business was full of good things attractively handled, and last, but not least, that this wonderful summer raised one more kick for the occasion, and it will be clear why the many delegates and their ladies voted the 1933 Conference as among the best of the series.

The Reception.

With the large selection of hotels which Bournemouth offers, the delegates were more scattered on this occasion than is sometimes the case, and there was consequently added interest in seeing "who was all there" when they assembled on the first evening at the Town Hall for the reception by the Mayor and Corporation. Councillor J. R. Edgecombe was accompanied by the Mayoress, and they were supported by Mr. Cash in receiving a very large assembly. It is to be supposed that business is transacted at the Town Hall, otherwise Bournemouth would not be so efficiently "run." At any rate on the evening of the twenty-fifth all base thoughts of such sterner matters were banished, or at any rate skilfully concealed in a very charmingly decorated interior, and the assembly got straight down to the business of the hour—a dance to a first-class band on a first-class floor, with the usual trimmings to a dance made unusual by their excellence.

A Civic Welcome.

This auspicious beginning undoubtedly put the delegates in the right humour to get down to the more serious affairs of the next day, when the first business assembly met in the theatre of the Pavilion on Tuesday morning. The centre of the stage (literally) was first occupied by the Mayor, who extended a civic welcome to Bournemouth—a progressive town, he expained, which in spite of its Victorian origin does not by any means stand still. In fact, new houses are in process of being built by the hundred. [Mental note by delegates—more business for Mr. Moon and the Bournemouth Gas and Water Company.] The Mayor paid a warm tribute to the Gas Undertaking, to its able management under the Chairmanship of Mr. Cash, and to Mr. P. G. G. Moon, Engineer and General Manager, who is well known, he said, for his energy, in business and for the foremost part he plays in the life of the town.

The President, in returning hearty thanks for the Mayor's welcome, felt sure the delegates would wish him at the same time to express their gratitude for the wonderful entertainment of the previous evening—a suggestion which was greeted with applause that left no doubt. The President, from local knowledge, paid a tribute to the work which the Corporation do for the town, and to the right way in which they do it. As Chairman of the Company, he endorsed to the full the well-deserved compliments which the Mayor had paid to Mr. Moon.

The Annual Report and Accounts.

The exchange of cabled greetings with the Institution party in America having been announced, the appointment was confirmed of Mr. F. C. Briggs (Dudley) to the seat on the General Committee recently vacated by Mr. H. Pooley (Leicester). The President read from a letter which he had received from the General Secretary, Mr. J. C. Walker, expressing his regret, which was sympathetically

THE NEW PRESIDENT.

Lieut.-Col. Stephenson is a leading figure in the printing industries. He was born in 1865, and on leaving Rugby entered the firm of Stephenson, Blake, & Co. (Sheffield), of which his father was the head, in 1883. Becoming a partner in 1888, he is now Chairman of the Company. He is also Chairman of the Sheffield Gas Company and of Thomas Turton & Sons, Ltd., a Director of the Sheepbridge Coal and Iron Company, Ltd., the Dinnington Main Coal Company, Ltd., and a member of Williams Deacon's Bank. He went to France as Lieut.-Colonel commanding the 4th West Riding Howitzer Brigade, and served in that capacity from 1915 to 1918. For his services he was mentioned in dispatches three times, and received the Distinguished Service Order. His record of municipal service makes astonishing reading. He has been a member of the Sheffield City Council since 1905. He had been in the City Council only three years when, in 1908, he was chosen for the office of Lord Mayor. In 1910, when he had been out of office one year, he was elected Lord Mayor for the second time. During his first year of office he was elected an Alderman, which position he still holds. He took a prominent part in the work of establishing the University, of which he is an Hon. LL.D., and was Treasurer and Chairman of the building fund. He was nominated by the King as first Treasurer of the University, and in 1910 succeeded the late Sir Frederick Thorpe Mappin as Pro-Chancellor. Since 1918 he has also been Chairman of the Council. Col. Stephenson has also been Master Cutler. He was elected to the latter office in 1919. He had been elected as Liberal Coalition Member for the Park Division of Sheffield in 1918. He was re-elected in 1922, but lost his seat in 1923. He has been a Town Trustee and a Church Burgess for many years, and in 1930 the Honorary Freedom of the City was conferred upon him. He has been a Magistrate for the City since 1905, and of the West Riding five years longer. He is also a Magistrate for the County of Derby, and served the office of High Sheriff of Derbyshire for 1932-1933. Since 1922 he has been a Deputy-Lieutenant of Yorkshire.

Lieut.-Col. H. K. STEPHENSON.

shared by the whole assembly, at being forbidden by his doctor to attend the Conference.

Representatives from Overseas who were present included Mr. S. H. Banks (Industrial Fuels Officer, Australian Gas Light Company); Mr. H. Tindale (General Manager and Secretary, Australian Gas Light Company); Monsieur M. Carpentier (President, l'Association Technique de l'Industrie du Gaz en France); Monsieur J. Gaumont (Director, La Société Pour le Dèvelopment de l'Industrie du Gaz en France); Dr. F. Gummert (Assistant Manager, Ruhr Gas Corporation); and Mr. M. Watanabie (Tokyo Gas Company).

Sir Francis Goodenough then proposed that the Annual Report and Accounts be adopted, a motion which was subsequently seconded by Mr. J. E. Cowen, J.P., Chairman of the Newcastle and Gateshead Gas Company, supported by Mr. D. W. Turner, Vice-Chairman of the S.B.G.I., and carried unanimously. The Report was published *in extenso* in last week's "JOURNAL," and a full account of Sir Francis Goodenough's introduction of it appears later in this issue. As a preface to his remarks, Sir Francis referred sympathetically to the enforced absence of Mr. Walker, who, he said, had had to face up to involuntarily breaking a wonderful record of attendances. While happily his health was definitely on the mend, his trouble had undoubtedly been traceable to the zeal of Mr. Walker's work for the Association.

Another popular reference by Sir Francis was to a recent visit he had paid to Mr. W. M. Mason. This old friend had complained of trouble with his "understanding," by which he meant that the support of feet and legs left something to be desired, but the cheering news was that in other respects he was in good health.

The Voice of Business.

In the course of his remarks on the Report, Sir Francis emphasized that advertising is the voice of business, and is an essential factor in the making of profit. To think of it as a regrettable expense, and look forward to the day when it might be eliminated from your accounts, is to misunderstand its function and its power altogether. It is as essential for an industry to learn to advertise as it is for a child to learn to talk. It would be as costly a blunder for a business not to spend money on advertising as it would be for a parent to refuse to spend money on his boy or girl learning to speak and write. By some business men, advertising is looked upon as an expense mainly connected with putting a proposition or a product before the public, and they hope to "cut it out" as soon as the business has got running. You might as well cut out the petrol supply when you've got the engine running—and *you could if you were only going downhill* all the time. But to keep going full speed along the level and surmount the hills when you come to them, you need an ample and constantly replenished supply of driving force—and as a nation and as an Industry we have plenty of stiff gradients to climb out of the valley of depression and over the hills of competition, and we have need for steady progress when we get back on to the high road and uplands of prosperity; so we simply cannot afford not to spend enough to give us all the driving force that advertising can provide.

Sound, educative, informative, reliable advertising is needed to-day more than ever for the building up and maintenance of sound business—business, based on efficient service, that will be profitable alike to buyer and seller, and therefore to the nation which together they constitute. There is no more profitable way of spending money on advertising than through the Press, both national and provincial, as well as the trade and technical papers.

Sir Francis has no fears as to the future of the Gas Industry, any more than the future of British industry generally. Both are faced with unprecedented competition; but both are in the hands of British traders of the same breed as the Merchant Adventurers of old; and he is therefore a thorough-going optimist as to our future. He is an optimist because he believes that his fellow countrymen, though often slow, even exasperatingly slow, sometimes damnably slow—and we must not forget that delay is dear as well as dangerous—have the wisdom, the courage, and the enterprise to move before it is too late, as, to take the most outstanding example, they did in the Great War, where they proved that while slow starters they were impossibly hard to stop when they had got going. He is confident, therefore, that in the difficult times that lie before us—and the soft money-come-easy times are gone for ever—we shall demonstrate again our capacity to secure victory and maintain progress and prosperity. To do this we must all adopt scientific methods of marketing and have them practised by trained men of selected character and ability. Let those of us who need to do so set ourselves to the task of preparing for the fray.

The New President.

Announcement was then made, amid applause, of the report of the Scrutineers, Messrs. C. F. Botley and H. Davies, to the effect that Col. H. K. Stephenson, D.S.O., J.P., had been unanimously elected President for the ensuing year. The contest, said the President, had not been very severe, because he understood there had been no other candidate! "What, however, will please us all," he continued, "is that our friend, Col. Stephenson, is to be our new President. I have had the honour and pleasure of knowing him for many years, and I can assure those of you who do not know him personally that you have in him a President of outstanding personality and a keen business man, a fact which is testified by what is being done in Sheffield under his direction. There has been developed an enormous business in spite of the depression and difficulties which have surrounded a district like Sheffield during recent years. Therefore, I think we shall congratulate ourselves on the fact that Col. Stephenson has been good

enough to consent to take the Chair during the ensuing year."

Col. Stephenson briefly acknowledged the honour which he felt had been conferred upon him. He was not, he said, very fond of the limelight, and was consequently probably an unknown quantity to most of the members. In following so distinguished a personality as Mr. Cash, he felt he had a difficult task ahead, but his old friend, Sir Francis Goodenough, had promised, perhaps somewhat rashly—but "you know his optimism"—that he would do all possible to keep him in the straight and narrow path during his year of office. "Now," continued Col. Stephenson, "it is my privilege on behalf of the Board of the Sheffield Gas Company to convey to this Association a very cordial invitation to hold the next Annual Conference in Sheffield. When you, Mr. President, conveyed a similar invitation at Leeds last year and invited the Association to meet in Bournemouth, you said that probably Bournemouth would be found somewhat different from Leeds. If you come to Sheffield I think you will find it differs from both. I cannot promise you the amenities of this beautiful and deservedly popular seaside resort, but I think we have much of interest to show you not only in our industries—from which I hope the clouds of depression will have lifted by next year—but also in the beautiful outskirts of our City which will compare with any scenery in the country. We are on the edge of the Peak district."

Needless to say, the cordial invitation was accepted with acclamation, and the President then proceeded to give his Address.

The Real Basis of Success.

The keynote of the Presidential Address was Service to the Consumer, and Mr. Cash's advocacy of it as the real basis of success was backed with many striking examples of the service which is given by the Companies with which he is most intimately connected.

At the outset he recapitulated briefly the importance of the work which the B.C.G.A. is doing in both the domestic and the industrial fields, emphasizing at the same time the warning that, while advice as to methods is always available, no gas undertaking must assume that a subscription to the Association can possibly take the place of an organization and service which each one must have individually. A further warning was as to the extended activities which our competitors contemplate through the Electrical Development Association. To meet this adequately will require renewed and intensive activity on our part, and the hope was expressed that the Gas Industry will not be lacking in its response should the need for additional funds become apparent.

In the forefront of service, the President places the properly conducted showroom, but, however well this is run, the most important factor in successful dealing with the public is personnel. The consumer regards the man with whom he is in touch as the undertaking, and a satisfied consumer is one of the finest assets. In view of this, the recruitment and education of the right kind of personnel is of vital importance, and the President gave interesting details of the training schemes of several of the Companies with which he is connected. As an interesting example of service from these undertakings may be quoted a recent Bournemouth programme for replacing 10,000 obsolete cookers on prepayment installations by larger and modern apparatus. This was followed by a campaign to persuade owners of obsolete cookers and fires to purchase up-to-date ones, the inducement of a small allowance being held out to such owners. In the case of another Company, the cost of the sale of fittings is set off, and all apparatus purchased is fixed free provided gas is in the house—a service which cost 0·094d. per therm of gas sold when averaged over 2150 major pieces of apparatus.

Maintenance is Service.

Another very important question is the attention which can be given to maintenance. Cost figures in this subject are always interesting, and the President was able to give one example of a "universal" scheme in which the cost per visit worked out at 1s. 1¾d., or for one year a little over 0·57d. per 1000 c.ft. of gas sold. A comprehensive scheme of maintenance in Croydon includes free attention to hired appliances, with a charge of 4s. to 5s. per privately owned appliance per visit. About 11,000 consumers make use of this service, and the cost to the Company is approximately 0·75d. per 1000 c.ft. sold. In Barnet, free inspection with charge for material is made in rotation whether asked for or not, at a cost last year of 0·05d. per therm, while 87% of the slot installations were overhauled, at a cost per therm of gas sold to prepayment consumers of 0·193d. This, however, included certain important work of permanent value for which credit can justly be claimed.

House-to-house inspection, as is only to be expected, materially reduces the number of complaints received. Service in this direction, however, is being enhanced by the increasing use of card indexes. The consumer can hardly fail to be impressed when he calls at the office to complain about any particular piece of apparatus, and, though probably he himself knows no details at all about the appliance, he finds he can be told all about its size, make, &c., from his index card.

On the subject of canvassing it is interesting to learn that the following up of inquiries noted by fitters alone resulted last year in Bournemouth in sales of £3000 worth of apparatus. In the same City, where electrical competition is severe, highly developed sales methods have achieved the following quite remarkable results in the last two years:

Summary of Houses Built and Points Run.

Year.	New Houses Completed.	No. Piped for Gas.	No. Piped Gas Only.	Electricity Only.	No. of Gas Points.
1931 . .	1323	821	496	6	8279
		1317			
1932 . .	1167	720	446	1	7587
		1166			

Summing up his remarks, the President said: "I believe thoroughly that, although in certain directions competitive costs are an element in securing business, money may be in many cases more advantageously spent in giving additional and better service rather than in the direction of reduction in the nominal price of gas."

A Good Horse.

Mr. Frank Jones, proposing a vote of thanks to the President, said: I sometimes think that living as I do rather in the Gas Industry I am so near the wood that I do not see trees, but I am very glad to find that our President was not led astray in that direction this morning. I have read or heard all the twenty-two Presidential Addresses to this Association, and they have all been optimistic. Our President is an optimist, but there is becoming permeated somehow into the Gas Industry a little pessimism. Sitting near to me on this platform are a few friends who enjoy a sport that I enjoy very much, that is hunting. Sometimes you are out riding and some person will tell you that there is a big fence at the bottom of a field. Mr. Cowen and Col. Woodall know very well that if you have a good horse—and in the Gas Industry we have indeed a good horse—you can get over any fence. Do not get it into your head that you cannot. Harden your heart and go for the fence, otherwise it will be your horse that will fall and you will not get to the other side. There is, however, I repeat, creeping into our Industry—and it is being very cleverly done by somebody, I do not know who—that we are going to be up against something that our forefathers and the people who handed us the Gas Industry were not up against, but my view is that although the competition may be a little keener than it was in the old days, the Industry has always had to face the same competition, and therefore I do plead that we should not get frightened of it. ["Hear, hear."]

Mr. C. Valon Bennett, Vice-President of the Institution of Gas Engineers, in seconding the vote of thanks, said: It is usual for the President of the Institution to carry out this duty, but he, as you know, is in America at the moment. Before he went he wrote a letter asking me to deliver a message to this meeting and to convey his greetings and very sincere wishes. Mr. Tarratt feels sure that the control of the Association is in most efficient hands, and that, while the need for a competent and live publicity service is to-day even greater than ever, the Gas Industry has in the B.C.G.A. an excellent organization which is thoroughly capable of dealing with all demands. While he confidently invites loyal support for the work of the Association, he calls attention at the same time to the need for every undertaking seriously to consider the advisability of arranging, at its own cost, more local publicity. This is done in several large towns, and has the resulting advantage of leaving a greater sum available for the work carried out by the B.C.G.A.

The motion was interestingly supported by Alderman J. S. G. Langley, Chairman of the Ramsgate Corporation Gas Department, who, as representing a relatively small undertaking, endorsed what the President had said about the value and help rendered to the Industry by the large London Companies, and the assistance that is always forthcoming from the B.C.G.A. In this connection they were looking forward to the completion of the arrangements

for the provision of development centres. As a non-technical Chairman, he appreciated the stress laid on the need for having satisfied customers, and it would seem obvious that the steps taken by the President's Companies in the interests of the workmen, and as regards showrooms and sales organization, must produce the desired result. "The President," he continued, "also referred to the recovery of benzole, and I should like to say that we recover crude benzole and have found it a very paying proposition. We have also found a very useful outlet for the crude naphtha which is produced, because we have found it an excellent fuel for use in the Diesel engine which we have installed in our waterworks—two products recovered as the result of the distillation of coal, an entirely British product."

The Work of the Staff.

Before the close of the Tuesday morning session, Col. H. W. Woodall voiced the thanks of the Association for the services rendered during the past year by the Executive Committee and the Staff—work which was done so quietly and so efficiently. He suggested that an all-round doubling of subscriptions would be a practical method of expressing their appreciation! Councillor Catto, of Aberdeen, seconded the motion, stating that, true to type, he expected to get something for every outlay, and in the service given by the B.C.G.A. he considered that full value was received for every penny.

When putting the motion, which naturally was carried with acclamation, the President, while he heartily endorsed all that had been said concerning the Staff, wished it to be quite clear that the Executive Committee included a Chairman and two Vice-Chairmen. He was sure they would specially like to thank Sir Francis Goodenough, and Messrs. W. J. Sandeman and A. W. Smith, whose unceasing efforts for the Association needed no recommendation.

In returning thanks, Sir Francis endorsed all that had been said of the Vice-Chairmen, the Executive Committee, and the Staff. The latter had had a very stiff time of late, first in losing Mr. Mason, and just recently in the regretted absence, through illness, of Mr. Walker. Great credit was due to Mr. Elson, on whom had devolved much of the detail work in connection with the Conference, and to Mr. Lucas who takes charge of the financial side under Mr. Walker.

"May I just throw out a hint," added Sir Francis, "as to one of the ways in which we can increase our activities during the next year and to get over the fence that Mr. Jones talked about. A way in which we can tighten our grip on the saddle, shall we say, is by increasing the number of District Conferences that we hold. If we can have two Conferences instead of one, that must double the effect of our district propaganda, and while it will throw an extra amount of work on the Staff and on the Committee, we will gladly take on that extra load if the Districts, after consideration, feel that it will be a wise move."

Publicity and Industry.

The resumption of the Conference on Tuesday afternoon was in private session, when Mr. A. P. Ryan, Publicity Manager, the Gas Light and Coke Company, submitted his paper on Publicity. The paper having been previously circulated, the author asked the meeting to "take it as read," and, in an informal address, he enlarged in a most interesting manner on the points he had made, and especially on their more particular application to our own Industry. Subsequently an extremely useful discussion took place. The paper opened with the startling news that "all citizens of Nosuchville will be delighted to hear that in future every therm of gas they buy will have been personally supervised by Mr. N. Gineer, who has just been engaged by our enterprising undertaking at a record salary for the Gas Industry anywhere in the world." This highly imaginary extract from a non-existent newspaper was introduced in order to bring out the point that on the subject of publicity you cannot generalize. People will go to see a cinema show because they have been told that a performer has been paid more than can possibly be good for him or her. Similar tactics applied to most other industries would start an immediate howl about the price of the commodity concerned.

Having thus exposed the danger of generalization, Mr. Ryan discussed what tests each industry can apply to its own publicity, in order to ascertain whether the best value for expenditure is being obtained, and he gave a definition in which every word is of practical significance. The essence of publicity is *telling people the truth about your business in so far as it concerns them, and making it interesting to them.*

Nothing but the Truth.

First of all the truth. To put the matter on its lowest plane, no great industry can achieve permanent success except on the basis of being absolutely truthful about what it has to offer. Happily, this question has no practical bearing whatever on the problems of the Gas Industry, which has a magnificent true story to tell, and leaders who would forbid it to tell anything else. Then, *in so far as it concerns them.* It is a healthy instinct of every one who loves his own trade to assume that every one else will love it in detail as he does. But this instinct is so fatal to publicity that all wise publicity men keep permanently on their desks a large lettered notice to the effect that "They don't want to read it"—"they" being the much distracted man and woman in the street who have very little time to spare, and no disposition whatever to spend it on other people's affairs. It is certain that no limits can safely be set to public ignorance of any industry. People do not naturally bother about what does not directly concern them. Keeping this fact before one in all publicity enables one to guard against allowing an idea, a phrase, or even a word that will not be understood to creep into publicity material—and nothing kills interest so quickly as the introduction of the unintelligible. Secondly, it forces one to select from a mass of technicalities those aspects of one's industry that can be shown to *concern* the public. As regards the third part of the definition—*making it interesting to them*—the temptation to guard against here is advertising to one's self. Three parties are concerned with every advertisement—those who pay for its production, those who produce it, and those whose spending power it is intended to influence. When two of the three parties—manufacturer and advertising agent—consult and confer, it is easy in theory to keep in mind that the absent partner is the one whose decision makes for success or failure. In practice, the manufacturer, proud of his factory and his products, wants to have their technical virtues extolled in print and picture, and he is liable soon to be out of the public's depth. His agents may easily allow their own professional enthusiasm to run away with them. It is hard for a man whose trade is words or drawings to scrap what seems good in his eyes and likely to provoke admiration among other writers or artists, because it will not help to sell something. As many advertisements fail through too much cleverness as through too many technicalities. How tempting it is to advertise to one's self!

So, if your publicity appropriation is to be well spent, you have to fix clearly in your eye the people you are seeking to interest, and then to tell your story in a way that will persuade them they are missing something valuable if they do not listen to you. Every advertisement ought to be scrutinized from this point of view, and none should be passed if it falls short of this standard. In Mr. Ryan's opinion, a man who brings a fresh mind to the Industry and knows how to write is, as a rule, better than anyone in the industry at preparing an advertisement. It is almost impossible for those who are steeped in the atmosphere to speak about it interestingly to the public. Writing is a highly technical business. You would not employ an amateur as an Engineer. Your danger of breakdown will be no less great if you have your advertisements written by unprofessional hands.

The Modern Gas Industry.

Coming more particularly to our own Industry, Mr. Ryan considers that no industry needs publicity more continuously, and none has a better story to tell. It has a long record behind it of which it is justly proud; but much more significant from the publicity angle is its position in the present. The Modern Gas Industry has hardly greater kinship with its past than has the modern oil industry with the days of oil lamps. "Gas-works" is a most inadequate term for the complication of chemical processes of economic value to the modern world that go on in our works and are all based on British raw material, coal. Against that background, which we all know, but the public do not, we can advance our direct sales campaigns, remembering again that we are more aware than is the public of our recent advances. It is no use our saying we sent out a leaflet about such-and-such appliance or put an advertisement out the other day in our local paper. The test is: Do our consumers as a whole know what we can offer them and why it is worth their while to come to our showrooms and see for themselves? Competition is a factor we have, of course, always to bear in mind. Our electrical friends are still very new to the world of distribution, and they have not all yet learned that publicity has its rules no less than other spheres of business. A slanging match between two great British industries, like gas and electricity, is, of course, unthinkable. But there have been signs that electricity does not scruple once again, as too often in the past, to make claims not based on proven facts and even to launch unjustified attacks on gas. We should not stand for such unfair trading.

Mr. Ryan concluded with the hope—by common consent

fully justified—that his remarks would have done something to show that publicity is an absolutely necessary part of modern industry, to be taken with the utmost seriousness. Some people are even a bit doubtful in their hearts as to whether it is quite dignified. Englishmen hate the idea of trumpet blowing, and there remains a suspicion in some good minds that it smacks of trumpet blowing. The Gas Industry wisely recognized many years ago that publicity must serve it, and took the very efficient step of founding the B.C.G.A., whose work, in spite of a quarter of a century of magnificent achievement, is only just beginning.

The Annual Dinner.

Tuesday evening saw the assembly of over 400 delegates and guests for the Annual Dinner at which the Association were entertained by the Chairman and Directors of the Bournemouth Gas and Water Company.

The toast of "The Gas Industry" was proposed by Dr. Edward L. Burgin, M.P., Parliamentary Secretary to the Board of Trade. In looking through our notes we find the word "laughter" in square brackets repeated over and over again, for, indeed, Dr. Burgin entertained the company with one of the most joyous after-dinner speeches we have ever heard. But this was not all, for when we come to the more serious passages there are matters of great importance. Dr. Burgin, having emphasized the vital necessity to the Nation of a well managed Gas Industry in the absence of any natural resources of oil or gas, turned to the question of legislation. It was not fair, he said, to expect from a Junior Minister any pronouncement reflecting Cabinet opinion. But inquiry had produced a Report favourable to the Industry, and he could assure them that consideration of legislation was in hand. "Possess your souls in patience, make good your case by statistics and arguments, and avoid, if possible, clamour, 'because it ain't no good.'"

Referring to Sir David Milne-Watson, whose name was coupled with the toast, Dr. Burgin said he could think of no higher praise than the fact that records showed that he had invariably been of assistance to Government departments. Why, he asked finally, does the Gas Industry perpetuate a title which covers only approximately one-third of its activities? Could they not give consideration to some such designation as "Treated Fuel Industry," implying, as is the fact, that they are able to supply not only gas but solid fuel and liquid fuel according as the whim, need, necessity, or production of the consumer demands.

For the occasion, a brilliant speech indeed to which no report could do justice; but experience has shown that there is no need to feel pity for Sir David Milne-Watson when his fate, as so often, is to reply for the Gas Industry to the brilliant speech of the evening. He was quite ready on this occasion, as usual, with a parry for every thrust, and, in returning thanks to Dr. Burgin, he quoted Dr. Burgin's own words in evidence against him—"in due course and at the right time it is hoped to introduce legislation." This rather reminded Sir David of the kind of invitation one sometimes receives to the effect that "You must dine with us some night." Nevertheless, in all seriousness, the Industry was grateful for the promise of fair consideration, but however much legislation was felt to be desirable, Sir David was of opinion that our future depends not so much on assistance from this quarter as upon our own power of work and power to convey our commodity to the public. It is true that to-day all is not plain sailing. We have, for example, no longer the monopoly. But it is good for us to have to struggle, and the Industry was never, in his opinion, in a fitter state to go forward than it is to-day. In such circumstances, the support of national bodies is essential, and in particular the support of the B.C.G.A. is more than ever necessary. It is capable of doing even more splendid work in future than it has done in the past. In conclusion Sir David referred to the wonderful success of the Bournemouth Company and to the prominent parts which the Chairman, Mr. Cash, and the Engineer and Manager, Mr. Moon, had played in achieving it.

Uncoveted Distinction.

The next toast was "The Local Boroughs," proposed by the President, who referred to the remarkable growth of Bournemouth—attributable in large measure to the excellent administration of the local authorities. The Gas Company, he said, had entirely kept pace with this growth. Sales of gas had increased from 572 millions in 1904 to 2799 millions in 1932. As regards the ancient Port of Poole, this also had shown and was still showing remarkable growth, and as far as the Bournemouth Gas Company was concerned it was a tremendous advantage to be able to have the Gas-Works situated on the quayside at Poole. This reference gave the Mayors of Bournemouth and Poole, who both replied to the toast, an opportunity of airing what is evidently a well-known local pleasantry. Both towns greatly appreciate a good gas supply and are quite prepared to draw it from one source, but it appears that neither is particularly anxious to have the honour of accommodating the producing works. It is Poole which has the honour.

After Col. H. W. Woodall, as a Director of the Bournemouth Company, had proposed the health of the visitors, Brig.-Gen. Sir Henry Page Croft, Bart., C.M.G., T.D., D.L., J.P., M.P. for Bournemouth, responded with a speech in which the serious was well leavened with the humorous. He did, however, in all sincerity congratulate the Industry upon the compliments which had been paid to it by Dr. Burgin, who in the two years that he had been a Minister had made a great name for himself in the House. The fact that Dr. Burgin's speech had contained suggestion and promise might well be taken as a good omen.

Subsequently, Mr. Moon and his staff were toasted on the proposition of Sir Francis Goodenough. Only the Headquarters of the Association, he said, could possibly know how much work by the local management is involved in the preparations for such a Conference as this, and the assistance of Mr. Moon and his Staff had been given with a thoroughness and a willingness which had smoothed out every difficulty. In his reply Mr. Moon said that one of the characteristics of the lunar body is that it reflects the light of other bodies, and anything that Sir Francis had said about him applied with even greater force to his Staff. They were one hundred per cent. gas-ites, and only their enthusiastic assistance in every possible way had enabled him to accomplish whatever had been done to make the Conference a success.

Defence and the Offensive.

The quotation that "the price of progress is eternal vigilance" formed an apt introduction to the second paper of the Conference, which was given on Wednesday morning by Mr. H. D. Madden, Chief Engineer and Manager of the Cardiff Gas Light and Coke Company. In it he described how the Industry's business in Cardiff is not only defended against the intensive competition to-day, but developed in spite of it.

That the goodwill of every consumer must be secured in each business contract is an axiom which must emanate from the Boardroom and percolate to the mind of the newest fitters' apprentice. It is probable that the gasfitter comes in direct contact with consumers more often than do most other members of the staff, and, bearing this fact in mind, the Cardiff Company recruit boys from the Secondary Schools, and train and discipline them for a year in the workshops devoted to consumers' service before allowing them out with the fitters. During apprenticeship they attend a special course of instruction at the Technical College, comprising physics, chemistry, and workshop mathematics, and later the theoretical and practical work of gasfitting and plumbing; the Company paying their fees and allowing the necessary leave of absence to attend at the College for two afternoons a week during the two winter terms, over a period of five years. These courses are so arranged that at twenty-one years the youths can sit for the Gas Supply examination of the Institution of Gas Engineers. All of which shows a realization of the fact that the public does very largely judge the gas undertaking by the fitter, estimator, or salesman with whom they principally come into contact. Recognition of the fitter as a valuable auxiliary salesman is also made in Cardiff by the offer of prizes to those who bring in fruitful inquiries for apparatus, with team prizes also, which engender healthy rivalry between districts.

At the five showrooms of the Undertaking a reputation for attractiveness is built up, and they play a prominent part in seasonal campaigns for special apparatus. It is realized that spasmodic advertisement is not so valuable as co-ordinated publicity, and this fact is true equally of local advertising and of the reinforcement afforded by the B.C.G.A. advertisements. Consequently, when it is desired to organize any campaign, the salesmen, gasfitters, and showroom attendants are taken into consultation, and discussion usually produces valuable suggestions. Secondly, the showroom window displays are carefully drawn up, and display cards, backgrounds, and material prepared. Special advertisements are planned ready for the Press, and pamphlets relative to the uses and advantages of the special gas apparatus are printed and enclosed in addressed envelopes ready for posting. In this way the force of the publicity effort is co-ordinated by having the showroom windows, Press advertisements, and the delivery of the pamphlets all commencing on the same dates, with the staff and fitters

already well informed to deal intelligently with any inquiries.

Fully Enamelled Cookers for All.

The popularity of an extended period of hire purchase has led to its development in Cardiff to cover many domestic appliances and even such larger installations as central heating for churches. Great importance is also attached to being able to quote an inclusive charge to cover fixing. Fitting costs have therefore been analyzed over a long period, averaged out, and are incorporated in the quarterly hire-purchase payments. "Madam, there is no additional charge for fixing," has closed many a sale in Cardiff. Service to slot consumers equal to that given to ordinary consumers is another cardinal point in Cardiff's policy. A few years ago the enormous task was undertaken of modernizing the whole of the prepayment customers' fittings and lighting points, and an accompanying offer of hire-purchase wash boilers proved, and continues to prove, highly popular. Also in demand are five-radiant gas fires fitted free at a rental of a shilling a quarter, which are found very efficient for the size of room met with in the average slot-meter dwelling. The prepayment installation includes a cooker, and for some years past a black appliance with white enamelled door of modern type has been supplied for all new installations, besides steadily replacing old-type cookers where these had previously been in use. This replacement work revealed a considerable desire for a totally enamelled cooker, and when special quarterly hire-purchase terms were offered "the demand descended like an avalanche and continues in a regular heavy stream."

In the industrial and commercial field the work of Cardiff is well known, and the Industry appreciates to the full the position the Company has assumed in support of the National Scheme. Rival interests are active in the exploration of this field, and close work and closer co-operation with the other Centres is an immediate necessity if our Industry is to reap the full harvest of load in the direction of applied heat in trade and industry. In development work in this direction, as also in the domestic field, charges for gas play an important part. The scale of charges in Cardiff has recently been revised to encourage consumers to employ gas more freely for the many purposes wherein it is pre-eminent. The new charges are on a descending scale according to the quarterly quantity consumed, and the prepayment consumer is catered for by the fact that the ordinary scale of charges becomes applicable to him after the first 8000 c.ft. Step-rates have been preferred to two-part tariffs and block rates; the chief objection to step-rates having been removed by "marginal relief" allowances.

Prestige.

Towards the general Press, friendly relations are fostered with excellent results. Then again Societies and Institutes of all kinds are cultivated, and they are frequently pleased to accept lantern slide lectures on gas-works and manufacture. Such associations, as well as schools, take full advantage also of organized visits to the works. A small cottage adjoining the Chief Offices has been made the headquarters of the Lady Demonstrator, and here she is able to receive lady consumers by appointment and demonstrate under home conditions. She also gives public demonstrations of cookery and household baking regularly. No opportunity is lost of giving her services at Cookery Centres and Girls' Institutions. Every week a special menu for each day is issued to the showrooms and offices, and this publication has become a regular feature; consumers in large numbers call for it every week, and the Company also provide a folder which contains the recipes for 52 weeks. Agreements with builders ensure that the carcassing of new houses is carried out to the Company's own specification. In a number of cases, too, by mutual arrangement, houses are equipped with suitable gas appliances on sale or return, with commission to the builder on those which are sold. The whole of the area has been canvassed and surveyed, and the result of house-to-house visits recorded on a card index system which is a valuable source of reference for finding potential new gas-consuming apparatus.

"In these days," said Mr. Madden, "prestige is of great importance to the Gas Industry, and we must take a broad view of methods of enhancing it. That cannot be done by shutting ourselves and our officers up in boardrooms and offices. We must play our part and see they play theirs in the public life of the day." Those who heard Mr. Madden's paper agree that in Cardiff they practise to the full what they preach.

Successful Propaganda Methods.

A large and obviously intensely interested audience had listened to Mr. Madden's paper, and it was soon clear that a lively discussion would ensue. The first speaker was Mr. T. P. Ridley, who said that immediately upon receipt of the advanced copy of the paper several of Mr. Madden's points had been circulated to the Newcastle Sales Staff for consideration as suggestions. And, the Newcastle organization being what it is, this would be a not inconsiderable compliment to any paper. In full agreement with the importance of the correct education of personnel, the Newcastle Company have a scheme of special permanent additions to salaries of salesmen who obtain certificates for certain specified examinations. Among propaganda methods adopted there, probably the most popular is the giving of lectures by the Company's demonstrators at the Welfare Centres of the City Health Department on the selection of suitable foods and the correct cooking of them. Undoubtedly the most effective from the point of view of taking orders is the sending out half-yearly of letters—by the thousand—to consumers who are revealed by the card index as being good prospects for any particular appliance. Such mail campaigns are always linked up with Press advertising, and every letter is followed up by a personal call.

The views of the smaller undertaking were voiced by Mr. Alfred Thomas (Wellington, Somerset) who, while making rather slow progress with two/three years H.P. terms for modern appliances, had met the full onslaught of the grid. Obsolete cooker users among the prepayment consumers had been their chosen prey, and Mr. Thomas had to do some hard thinking quickly. As a result, an all-enamelled, heat-controlled gas cooker at 1d. a day (payable quarterly) soon tempted 50 of these consumers, and no further advertisement was needed. A rush of orders saw modern cookers installed within three months in 22% of prepayment consumers' premises. But still Mr. Thomas considers the financial position of the smaller undertaking as difficult, and he hopes to see before long the whole country linked up in areas, otherwise business in a number of high-class appliances is in grave danger of being missed.

Increased Gas Sales All Round.

The detached views of the newcomer to the Industry—the "bird of passage" it may be—were heard with interest from Alderman Bowles, Chairman of the Goole U.D.C. There must be much still in the Industry for it to be able to fire a man of experience with the enthusiasm which Alderman Bowles showed, and for this reason alone his contribution would have been welcome. In the course of it he put up what he himself described as a daring and controversial suggestion. He allotted percentages to propaganda values in the following terms: Word of mouth, personal talk, and demonstration, 50%; window display, 25%; personal letter, 15%; Press advertising, 10%. The meeting took Alderman Bowles to its heart, and certainly hoped that the good citizens of Goole will long continue to approve of his Chairmanship of their Gas Committee.

Then followed Mr. J. H. Clegg (Burnley) with an advocacy of long-term H.P.—up to five years for fires, and as long as ten for cookers. Simple hire he favours only for popularizing any particular appliance in the first instance. Great success has been achieved in Burnley with selling all-enamelled cookers through prepayment meter rebates. The meter is set at 20 instead of the normal 26 c.ft., and, when a certain amount of gas has been consumed, the cooker, or other appliance, becomes the consumer's property. The period of purchase in this way has varied between three and eleven years, and averages about eight. In the past twelve months the scheme has disposed of 3500 appliances and 6000 lighting switches over a period, and it is hoped to develop gas fire sales by the same means. For the main increase in the Industry's business Mr. Clegg looks to industrial sales, and in his opinion an increment of 20% output is possible to most undertakings. But an essential is that easy facilities for the acquisition of suitable apparatus, as well as attractive terms for gas, must be offered to manufacturers.

The Most Helpful Conference.

The Conference was described by Mr. Sandon Stubbs (Liverpool) as the most helpful of any he had attended. The paper had, however, brought home to him more forcibly than ever the difficulties of the small undertakings. For such essentials as lady demonstrators regional co-operation is, he thinks, an urgency. They have in Liverpool a scheme which proves very successful for meeting competition. The local Press takes a house from the builder, in which the Gas Company unostentatiously co-operates by fitting it up as "all gas." The Press is happy because it runs competitions in connection with the house, and the gas appliance makers advertise in the paper. The Gas Company is happy because the competition prizes are such articles as gas cookers, and because sales of apparatus as

a result of one all-gas house are seldom less than ten times the Company's outlay. When they are not busy with a house, they appear to be equally successful in Liverpool with showroom cookery lectures. A course was recently attended by 120 to 130 persons, and £1000 worth of high-grade cookers were sold in the week. Mr. Stubbs strongly deprecates the idea that any gas undertaking cannot "afford" salesman canvassers. In Liverpool they all pay their way on salary and commission with a profit to the Company on appliances, in addition to the resultant increased sales of gas.

The policy of higher rates for slot consumers did not meet with approval by Mr. C. S. Shapley (Leeds). Few, he thought, would be able to avail themselves of the reduced charges for consumptions of over 8000 c.ft. a quarter which Cardiff offers. As for sales methods, Mr. Shapley personally signs about 60 letters every day, which are followed up next day by a fitter, and considerable success attends this scheme. But in his opinion one of the greatest obstacles to increased gas sales is the continued existence of unhealthy flueless rooms, and, with general approval, he urged support of the Coal Utilization Council in its efforts to get flues into every room when slum clearance schemes are on foot.

Mr. Halkett, Jun. (Sheffield), received a warm welcome in making his maiden speech to the Association, in which he was able to report the cheerful news that his Undertaking had just succeeded in placing 70 bedroom gas fires in Sheffield's largest hotel. And then, as one has learned to expect from Sheffield, he was able to relate examples of the continued success of gas in its application to industry.

The Heating Engineer.

At this point Mr. R. J. Auckland (Cardiff) intervened to deal with a few points which had been raised. Mr. Ridley had asked why Cardiff chose the step rate in preference to the block system. The answer was they had chosen it because, after full consideration, they had decided it was simpler. May be time and experience will prove the other more advantageous, in which case a change can be made. He could not agree that prepayment consumers as a whole are entitled to expect the same rates as ordinaries. On that basis gas undertakings would cripple their ability to offer special rates for industrial and other higher spheres of usage. The block system of charging, however, found another supporter in Mr. J. W. Whimster (Bath), who maintained that it offers greater inducement to the consumer to go for the extra load. And what, he asked, can the B.C.G.A. do to educate the heating engineer? Architects and builders have had their full share of attention, but decisions on heating systems are generally left to the specialist, and in Bath they have had unfortunate experiences lately as regards gas, and great difficulty in getting central heating accepted even at 3½d. As for service, we must make sure it is really effective if we are to place reliance on it for increasing business. Mr. Madden had said that cheap gas without service would not get consumption. Mr. Whimster's warning, which received approval on many sides, was that dear gas with the best service in the world will not get us there.

There was much satisfaction when Sir Francis Goodenough, who spoke next, announced that a scheme for co-operation as regards lady demonstrators is at present actually under consideration by the Executive Committee. In complimenting Mr. Madden on his paper, he described him as the leader of a team, which, as distinct from the driver of a gang, is one of the chief points of salesmanship. Sir Francis also took this opportunity of thanking the President for his conduct of the meetings, which, if an opinion is permissible as part of our story, was admirable throughout—the firm hold which cuts out the unnecessary and gets through the business, with the spice of humour which renders authority acceptable.

Everybody who wished to speak having had ample time, the President wound up an excellent discussion, among his most interesting remarks being a comment on the four-part tariff system of charging, which had been referred to by Mr. Clegg. In Mr. Cash's opinion, with which many agreed, it may be wise to work out our prices on this basis, but it is not so wise to pass them on to the public in this guise—a device beloved of the electricians probably more than of their consumers.

Luncheon to the Retiring President and the Bournemouth Directors.

Mr. Madden, in a reply to the discussion, having cleared up one or two small points which required elaboration, the meeting was free to adjourn. Delegates from second nature sat tight a moment awaiting the long row of votes of thanks which are so often the very formal wind-up of conferences. But a moment's thought satisfied them that everybody who could have been included in such votes had been much more sincerely thanked at one time or another in the course of the meetings—an arrangement greatly to the credit of organization. A move to another part of the Pavilion—such was the convenience of Bournemouth's amenities—revealed the table spread for the last function of the Conference, Luncheon by the President-Elect, the Vice-Presidents and Members of the Association to the retiring President and the Directors of the Bournemouth Gas and Water Company. An innovation was that this luncheon was graced by the presence of the ladies. Colonel Stephenson, in the Chair, took one more opportunity of thanking Mr. Cash, the Bournemouth Company, and Bournemouth for all that had been done to make the visit such an outstanding success, and of stressing the cordiality of the invitation which the Association had already accepted to visit Sheffield next year. Mr. Cash briefly replied, having an admirable regard, as he had throughout the meetings, for a just proportion between eloquence and time, and Sir Francis Goodenough gave the toast of the Press, with a word of gratitude for the excellent "press" which the Conference had received. A reply by Mr. Fairbairn, Manager of the *Bournemouth Daily Echo*, concluded the festivities.

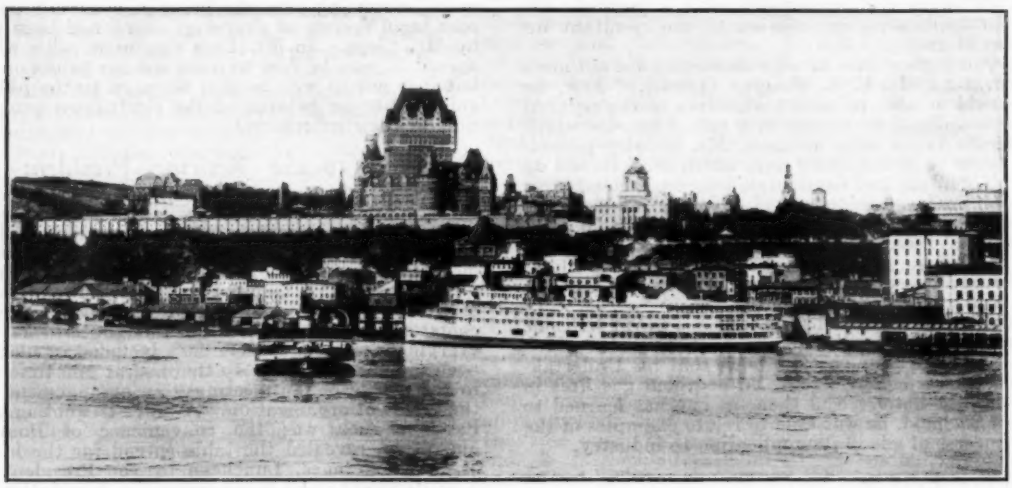
A Drive and a Visit.

But this gathering of the Association, as all present would have wished, died hard. Outside the Pavilion was mustered a whole fleet of motor coaches and innumerable private cars which were quickly filled for a trip through some of Bournemouth's beauty spots, including a number of the popular Chines and Parks, to the ancient Port of Poole, where the up-to-date Pitwines Gas-Works were visited. Parties of twenty were supplied with a guide each, and an inspection of great interest took place. In a marquee in the works grounds the Company subsequently entertained their guests at tea with real Bournemouth hospitality and to the strains of music provided by the works band in full uniform. After which we all went our way, realizing with gratitude that for three days our lives had been organized for us for both profit and pleasure without the least effort on our own part.

[*Our full Report of the Proceedings commences with the Presidential Address of Mr. William Cash on p. 62.*]

THE INSTITUTION TOUR

By THE EDITOR



QUEBEC.

We had made an exceedingly good passage, and so were able to disembark in Montreal on Friday evening. Very early in the morning we were off Quebec, and at breakfast the President's table was joined by Major J. J. Humphreys, Chief Engineer, Gas Department, Montreal Light, Heat, and Power Consolidated; while when the ship berthed, Mr. H. M'Nair, President of the Canadian Gas Association, came aboard, accompanied by Mrs. M'Nair.

Appreciation at home of the objects of the visit was shown by a number of telegrams. These objects are to further the cause of the Gas Industry and to add still greater strength to the bonds of friendship between people living in various parts of the world. If the Gas Industry be served, the tour will have been well worth while; and if the cause of world-wide good feeling be assisted, the visit will repay many times over the time involved. The warmth of our welcome indicates that good work will be done under most pleasing conditions. Among the telegrams received by the President or Secretary, in addition to any previously mentioned, were the following:

"Hearty greetings to you and all your associates. May your visit to the Western Hemisphere be pleasant. We envy our Canadian friends, including President M'Nair, in having the privilege of first meeting you over here. President Hewitt will greet you at Montreal. We look forward to seeing you at Chicago.—ALEXANDER FORWARD" (Manager of the American Gas Association).

"Just a word of welcome to you and your associates on your arrival in Canada. Hope to see you all soon.—ARTHUR HEWITT" (President of the American Gas Association).

"Fraternal greetings and best wishes for successful American tour.—LONDON JUNIOR ASSOCIATION."

"May good luck, good weather, and good fellowship attend you and your party.—CANNING, Newport."

"Best wishes for pleasant and successful visit.—PARSONS."

"Please accept, and convey to all who accompany you, my best wishes for a happy journey, a pleasant tour, and a safe return.—VALON BENNETT."

"Hope you will be successful and happy during whole period of visit.—RIDLEY."

"My very best wishes and hopes for you. May you all have happiness and success throughout the tour.—PRICE."

CANADA.

Writing in the Summer Number of "West's Gas," to which extended reference was recently made in the pages of the "JOURNAL," Mr. H. M'Nair, President of the Canadian Gas Association, and Manager of the Winnipeg Gas Undertaking, stated that gas was introduced into the Dominion in 1838, when "it provided the streets of Montreal with a new and novel illuminant." Toronto adopted gas in 1841, Halifax (Nova Scotia) in 1843, Quebec in 1849, and Winnipeg in 1883.

Canada ten years ago had a population approaching 9 millions. To-day the figure reaches 10½ millions. Looking for a corresponding increase in total gas sales, one finds that the 12,500 million c.ft. of 1923 has grown to 17,500 millions, and the capital now invested in the 38 gas undertakings of the Dominion is estimated at £12,000,000. These results have been achieved in direct competition with the world's cheapest electrical energy.

Sales in Toronto have increased from 5126 million c.ft. in 1923 to 5927 millions to-day; in Montreal, from 3973 to 5838 millions; in Vancouver, from 511 to 1160 millions; and in Hamilton, from 120 to 1143 millions.

The ship remained but a very short time at Quebec, but this was sufficient to enable many members of the party to taxi through the most beautiful parts of a most beautiful city. The most historical spots were pointed out to us, and we felt for this brief space that we were living in the past.

From the end of the Avenue des Braves we got a sight of the gas-works, but had no time to make a close inspection.

QUEBEC.

The City of Quebec receives its gas supply, with Mr. J. C. Dawson as Superintendent of the Gas Division, from the Frontenac Works of the Quebec Power Company, which were taken over in 1908 by the Quebec Railway, Light, Heat, and Power Company. At that time the plant comprised a modern carburetted water gas installation, and until 1929 carburetted water gas exclusively was distributed. Since that year, however, the annual output has consisted of about 90% coal gas and 10% carburetted water gas. Now the annual output approximates 340 million c.ft., of an average calorific value of 470 B.Th.U.

It was in 1926 that the existing equipment showed itself to be decidedly inadequate, and a scheme was put in hand to provide for further requirements. The new plant includes a vertical retort house and coke screening plant on the Woodall-Duckham system, with apparatus and purifier houses by the Whessoe Foundry and Engineering Company, Ltd., a gasholder by Messrs. R. & J. Dempster, and an exhauster by the Bryan Donkin Company.

The gas-works are situated two miles from Quebec Harbour, whence coal is transferred by rail. The fact that the St. Lawrence River is closed to navigation through the months December to May necessitated extensive storage provision for coal.

MONTREAL.

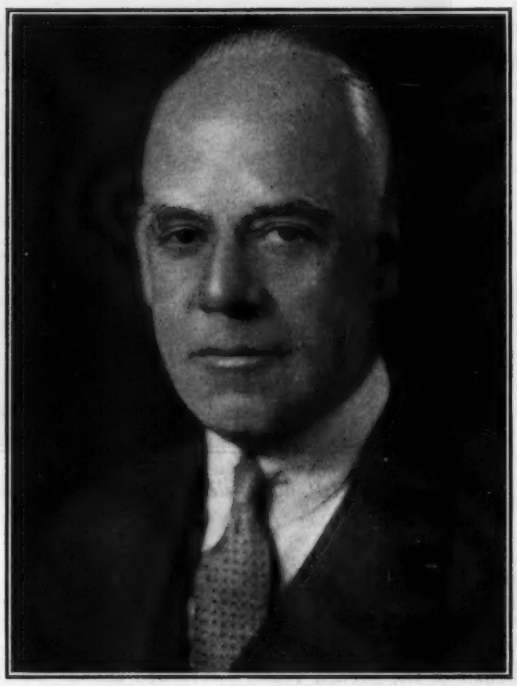
The run up the St. Lawrence from Quebec to Montreal proved of absorbing interest. Those who were taking this run for the first time must have felt themselves in hearty agreement with one member, who remarked that people who stay in England do not realize what an Empire we have. Montreal was reached late on Friday evening, and from then on we were in the kindly and sympathetic hands of the Reception Committee of the Canadian Gas Association and the Montreal Light, Heat, and Power Consolidated. The members of the Association Reception Com-

mittee were President M'Nair, President Arthur Hewitt (American Gas Association); Col. D. R. Street, Director Public Relations, Ottawa Gas Company; Mr. J. C. Dawson, Superintendent, Gas Department, Quebec Power Company, and Second Vice-President of the Canadian Gas Association; Mr. A. L. Farquharson, General Manager, Public Utilities Commission, Brockville, Ont.; Mr. John Keillor, Gas Engineer, B.C. Electric Railway Company, Vancouver; Major J. J. Humphreys, Chief Engineer, Gas Department, Montreal Light, Heat, and Power Consolidated; Mr. D. G. Munroe, Vice-President and Managing Director, Montreal Coke and Manufacturing Company and Vice-President of the Canadian Gas Association; Major E. Sweet, K.C., of Brantford, Ont., President of the Natural Gas and Petroleum Association of Canada; Mr. J. B. M'Nary, Manager of the Canadian Meter Company of Hamilton, Ont.; Mr. G. W. Allen, Secretary-Treasurer of the Canadian Gas Association, and Editor of the *Intercolonial Gas Journal of Canada*. In addition, there was a local Montreal Reception Committee, who were untiring in their efforts on behalf of the visitors. To all these ladies and gentlemen the visitors were greatly indebted, and it is a pleasure to express this indebtedness, even in this totally inadequate manner.

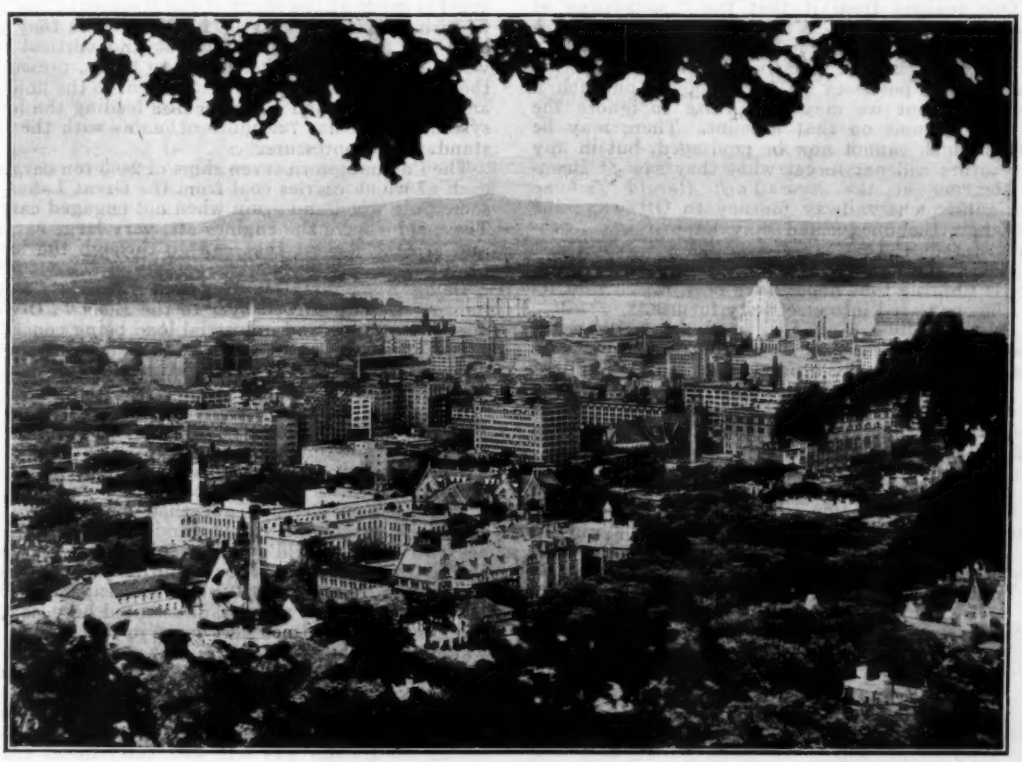
The two days allocated to Montreal passed all too quickly —full as they were of interest.

On the Saturday morning we were joined by the two groups of gas engineers and ladies from France, and motor coaches left the Hotel Windsor to take us all for an inspection of the coke and gas plants of the Montreal Coke and Manufacturing Company. From there we were taken to the Lachine power plant, where an opportunity was afforded to walk out on the wing dam for a close-up view of the tumbling waters of the Lachine Rapids of the St. Lawrence River. After lunch, the coaches again left the Hotel, this time for a tour of Montreal, Westmount Mountain, and the Montreal Island power plant on the Back River.

The day was brought to a close by dinner in the Prince of Wales Salon at the Windsor Hotel to visiting delegates as guests of the Montreal Light, Heat, and Power Consolidated, and the Montreal Coke and Manufacturing Company, with Major Humphreys in the chair. A feature of this dinner was Canadian wild duck. The Chairman extended a cordial welcome to the guests, and following this there was an equally cordial official welcome by Mr. Donald G. Munroe, Vice-President of the Montreal Coke and Manufacturing Company. Among those contributing to a short speech list were Mr. Tarratt, M. Baril, Mr. Arthur Hewitt, and Mr. M'Nair. Mr. Tarratt made graceful acknowledgment of the indebtedness of the visitors to their hosts. "We are," he said, "delighted with your city, your beautiful thoroughfares, and your handsome buildings." Mr. M'Nair declared that it had been a great pleasure and a great honour to him to welcome the visitors from overseas. When he came aboard the ship he was decorated by the President of the Institution, and he said



J. S. NORRIS,
President, Montreal Light, Heat, and Power Consolidated, and the Beauharnois Power Corporation.



MONTREAL FROM MOUNTAIN SIDE.

The 65,000 H.P. hydro-electric plant of the Montreal Island Power Company, on Back River, owned by the Montreal Light, Heat, and Power Consolidated.

he would value this decoration as long as he lived. Referring to the previous visit of Mr. Canning and Sir Francis Goodenough, Mr. Hewitt said that Mr. Canning had struck him as being a man of intense honesty of purpose, while Sir Francis possessed a great sense of humour. Mr. Escher, on behalf of the French visitors, returned thanks for their hearty welcome.

Sunday was devoted to a drive to the huge Beauharnois hydraulic electric plant, where it is hoped eventually to put the full flow of the St. Lawrence River through, and create 2 million horse power. The specially constructed canal is over 1000 yards broad and 15 miles long. Turbines of 200,000 horse power are already installed. It should be pointed out that the President of the Montreal Light, Heat, and Power Consolidated (Mr. John S. Norris) is also President of the Beauharnois Company. The turbines referred to are housed in a building more than 1000 ft. long, which must have been the admiration of every engineer present. One realizes from it that the " harnessing of water power " is not so simple a thing as it may sound; but one also realizes the enormous possibilities of such a scheme. We may comfort ourselves with the reflection that Great Britain possesses no water power on such a scale as Canada; but we may be unwise to ignore the lessons of Beauharnois on that account. There may be developments which cannot now be envisaged, but in any event the visitors will not forget what they saw at Beauharnois. Glancing at the *New York Herald Tribune* during the subsequent railway journey to Ottawa, some evidence of how the unexpected may happen was forthcoming in a statement that " a new geyser which has just made its appearance in the district of Larderello, in Italy. The geyser is so large that hopes have been raised that its energy can be converted into electricity for use."

Our hosts had kindly arranged for hot lunch to be served in the power house by caterers from Montreal (a distance of 40 miles away), and to this a party of about one hundred sat down. The return journey to Montreal was by way of the head race control gates and the new control gates at Valleyfield, built to control the waters of the St. Lawrence at the foot of Lake St. Francis.

The same night we proceeded to the Chateau Laurier Hotel, at Ottawa, the official convention headquarters of the Canadian Gas Association. This journey brought us into contact with a very small matter in which they do not do things better in Canada; for while Eastern Daylight Saving Time is generally observed, trains are scheduled on Standard Time, which is, of course, one hour earlier.

Gas and Electricity Supplies of Montreal.

Montreal is a city of 1,250,000 people on the Island of Montreal, which is at the confluence of the Ottawa and St. Lawrence Rivers. It is the largest grain seaport on this continent, and its total shipping is exceeded only by the Port of New York. The Island rises to two peaks, Mount Royal and Westmount, which are about 750 ft. high and are old volcanic extrusions through the surrounding limestone plains. Mount Royal is surmounted by a park and marked with a very high cross, which is lighted at night, and can be seen for many miles. This and the wayside crosses and shrines in the countryside give quite an old-world appearance, which is understood when one considers that 65% of Montreal's inhabitants are Canadian French, and that both French and English are the official languages. Most of the street signs are in both languages. While not old as compared with European cities, Quebec, Three Rivers, and Montreal date back to about 1650.

The first gas-works in Canada were built at Montreal in 1836, and the growth of this new country is indicated by the fact that in less than one hundred years five different gas-works have become too small or obsolete and abandoned as manufacturing plants. The Montreal Light, Heat, and Power Consolidated sell all of the gas and electricity used on the Island of Montreal, and electricity in some of the surrounding towns. All gas (about 6000 million c.ft. per year) is made at the plant of the Montreal Coke and Manufacturing Company at Ville Lasalle, where they make coke oven gas, carburetted water gas, and vertical retort gas, which is pumped out at from 1½ to 15 lbs. pressure through the 70 miles high-pressure belt system to the holder stations and 73 underground governor pits feeding the low-pressure system, which has 720 miles of mains with the Company's standard 6-in. pressure.

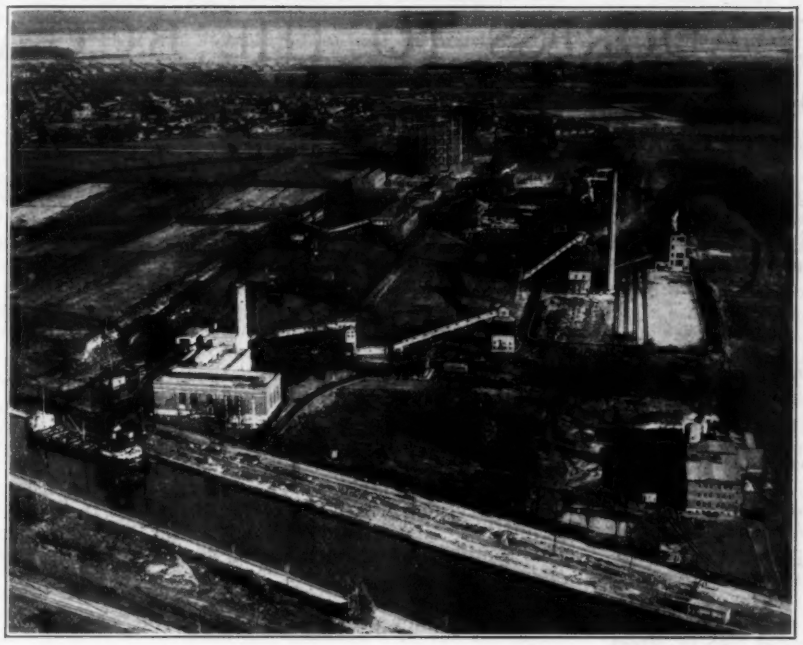
The Company own seven ships of 2400 ton cargo capacity, each of which carries coal from the Great Lakes ports and some pulp wood and grain when not engaged carrying coal. These ships have the engines aft, very large cargo hatches, and are the largest that can go through the locks on the St. Lawrence.

Being a combination Gas and Electric Company, the lighting was all turned over to the Electric Division years ago, the cooking and industrial load being conceded to gas, except in special cases—such as electric steam boilers using off peak power at very low rates, electric steel furnaces, some core ovens, &c.

Gas is sold on a step rate system, starting at $1.10 per 1000 c.ft. and dropping to $0.50 per thousand for the lowest step. The maximum rate for electricity is only $0.03 per KW.-H., and drops rapidly according to quantity, power factor, &c., to very low off-peak power prices.

The Electric Division get their power from numerous sources. The Cedar Rapids and the Beauharnois plants are two of the world's great hydro-electric developments. Beauharnois is designed for an ultimate 1,000,000 H.P., and Cedar Rapids has 240,000 H.P. The capacity of the Back River power plant, which is illustrated here, is 65,000 H.P., which is not considered very large in this land of bounteous water powers.

At the plant of the Montreal Coke and Manufacturing Company there are 59 Becker ovens of 17 tons capacity, fired by producer gas, water gas, or oven gas at will, a very complete coke grading and shipping plant, 12 ft. automatic carburetted water gas sets with mechanical grates, 53-in. pressure Donkin Rateau air fans, Roots station meters,



All gas for Montreal is made at the plant of the Montreal Coke and Manufacturing Company at Ville Lasalle. The daily capacity of these works is 20,000,000 c.ft. coke oven gas, 22,000,000 c.ft. carburetted water gas, and 8,000,000 c.ft. vertical retort gas.

Cutler-Hammer recording calorimeters, and all the latest gas-works gadgets.

The Company publish an attractive monthly magazine, printed in French and English side by side, so as to cater for all readers. That the Gas Department, with Major Humphreys as Chief Engineer, is fully efficient, is evidenced by the fact that since 1920 the unaccounted-for gas has been reduced from more than 13% to just over 4%. Strict by-laws are in operation concerning gas installations in buildings (piping, appliances, and flue connections). The Company quote a net rate of 7½ cents per 100 c.ft. for gas consumed for central house heating, and where a gas fired house heating system is employed the gas required for hot water purposes and garage heating will also be supplied at this special rate.

OTTAWA.

Monday was devoted to two sessions of the Canadian Gas Association in the beautiful Chateau Laurier, one of Ottawa's many striking architectural features.

Gas Supply of the City.

The first gas undertaking was started in 1853 by the Ottawa Gas Company, the plant being built in what is now a business section of the city. This Company amalgamated with the Ottawa Electric Company in 1906, and in 1909 the joint companies became known as the Ottawa Light, Heat, and Power Company. The original plant produced coal gas, which at that time was principally used for lighting purposes. This was later enlarged by the installation of water gas apparatus. The present plant was built in 1913-14, as the demand for gas had outgrown the capacity of the old plant; also production costs were too high, due to congestion and lack of railway facilities.

With the introduction of cheap electricity, entirely generated from hydro developments on the rivers in the immediate vicinity, gas gave way to electric lighting.

Mr. W. H. Munro succeeded Mr. D. R. Street as General Manager early this year, and he has taken over a plant which, with minor changes, remains as it was thirteen years ago, when described in a paper read by the late General Manager (Mr. A. A. Dion) before the Canadian Gas Association. In the same year, Mr. F. Elcock, the Company's Superintendent of Works, presented a paper to that Association, in which he described the results of steaming in Glover-West vertical retorts as practised at the works, where light steaming was inaugurated with the completion of the installation.

Three types of gasholders at the Hochelaga Gas-Works, Montreal—1,000,000 c.ft. spiral, 3,000,000 c.ft. guide-framed holder in steel tank, and 10,000,000 c.ft. M.A.N. waterless holder. This is the largest waterless holder in the British Empire, but there are a 20,000,000 c.ft., a 15,000,000 c.ft, and a number of 10,000,000 c.ft. holders of this type in the United States.

PRESIDENTIAL ADDRESS TO THE B.C.G.A.

By WILLIAM CASH, J.P., F.C.A.,

Chairman of the Bournemouth Gas and Water Company.

In addressing you as your outgoing President for the year now finished, it is difficult to find anything new to say with regard to the relationship which exists between the Gas Industry and the British Commercial Gas Association.

The B.C.G.A.: Its Aims and Activities.

The Annual Report, which is in your hands, deals in detail with the activities of the Association. I need not, therefore, go over this ground again, but I do want to emphasize that the Association exists with very definite objects. Its main endeavour is to assist gas companies and other undertakers.

You know, of course, of the central showroom in Grosvenor Gardens and also that the Association does all in its power for propaganda purposes, particularly in connection with the sale of gas. Under this head first comes Advertising, and the Association provides you with information and is prepared to help with blocks and material for local advertising. It engages also in direct advertising. I think it is forgotten sometimes how this national advertising helps local undertakers, for the material which appears in national newspapers is read by the local consumers. In this town, for example, the national newspapers are in the hands of most residents, and I suppose on every train journey, wherever home may be, the traveller will be found reading the National Press, wherein he will find material to interest and instruct him in various ways in connection with the Industry.

Then in the provision of literature, in the organization of local conferences and in lectures up and down the country, the Association is doing excellent work.

Advice, moreover, can be obtained in connection with special work as to the systems to be employed in the layout and organization of showrooms and such like matters. I am quite sure that the Association has done most valuable work in forming public opinion favourable to the Gas Industry and in bringing to the notice of the public the claims which the Industry has for support on national grounds. All this kind of work is difficult to define and the value cannot be assessed in £ s. d. It must be remembered always from the newspaper point of view that it is news which interests the public, and it is skilled advertisements only which can procure insertion of such material in the Press. Take, for example, the use of gas for motor vehicles; the novelty of the idea has attracted the public, and the fact that this is a novel national development at once arouses interest.

The Industrial Centres.

The Association, in conjunction with the other national bodies, is now engaged in developing the use of gas for industrial purposes. Several of the leading and progressive undertakings have, as you know, set up industrial centres, and these are actively at work in Birmingham, Newcastle, Sheffield, Cardiff, and Leeds. It is hoped shortly to establish centres in London, Bristol, Liverpool, Manchester, and elsewhere. While it is true to say that in a town like Bournemouth the sale of gas for industrial purposes is possible only to a very limited extent, there are other opportunities which, perhaps, might be more accurately described as commercial rather than industrial and where Gas can be used in a variety of ways.

There is no need to tell this audience of a large scale system of cooking by gas such as prevails in hotels, in restaurants; or in hot water developments, or for central heating, but, by co-ordinating the results of research and experiment in industrial and other centres, this information will be available to all those undertakings who join in the new schemes which are now approaching realization. The whole Industry owes a debt of gratitude to the splendid pioneer work which has been done in the centres I have mentioned, and the larger London Companies have, as you know, expressed their willingness to assist other undertakings in the South by putting their experience and research work at their disposal on suitable terms.

But, while I have been emphasizing the importance of the work which the Association does and its value, I must emphasize equally the necessity of each local undertaking conducting its own business and bringing its own methods up to date. While advice and help as to methods are available, no gas undertaking must assume that everything can be done for them and that a subscription to the British Commercial Gas Association can take the place of an organization and service which each one must have individually.

Importance of Supporting the Association.

The work of the Association costs money and it is essential that the Association should be supported by every undertaking throughout the country, and supported to the full, by the standard subscription which has been fixed. It is manifestly unfair that any undertaking should get the advantage of all the work that has been done at the expense of other members if, at the same time, they do not make their own full contribution towards the total.

No doubt you are all well aware of the coming extended activities which our competitors contemplate through the Electrical Development Association. This, if it is to be met adequately, will mean renewed and intensive activity on the part of our Association. This necessity is very present in the minds of all the national bodies, and if, as a result of our deliberations, it becomes apparent that additional funds are necessary, I hope sincerely that the Gas Industry will not be lacking in its response.

Magnitude and Efficiency of the Industry.

Our Industry is of such magnitude and importance that we should have no difficulty in bringing our claims for support before the public. Two hundred millions sterling is invested in the Gas Industry; 115,000 people are directly engaged in carrying on the business of the supply of gas to ten million consumers. Incidentally, we provide every year large sums of money to pay for the coal, the constructional works, and the appliances which our consumers require, and all this goes to provide employment for large numbers of workpeople in this country, in addition to those directly employed, while, as exporters of various products, we undoubtedly assist the export trade of the United Kingdom.

I think you would all agree that the Industry stands well in its technical methods. Our works have been improved both in the actual carbonizing results and the type of plant employed. The labour-saving devices which have been installed have, in our case, been attended with the satisfactory feature that the growth of the Industry has enabled us to absorb those men who, in some industries, might have been thrown out of work; and this because so much more labour and employment have been necessary in the districts, as distinguished from the works, so that the total number of employees is as many, or even more, than was the case a few years ago. Mechanization has been introduced into our offices with great benefit, with resulting economy of time and labour and with added efficiency of record. Our costing and store-keeping systems have also been improved with like advantage.

Our main commodity, of course, is gas, but we are en-

gaged to-day in selling smokeless fuel, including in this term coke as well as gas, while the recent developments of benzole have the double advantage of assisting the gas undertakings and in providing a national motor spirit derived from British coal.

All these factors have tended to keep the price of gas at a reasonable figure and have enabled the Industry, by giving special terms for special supplies, to hold its own in competition with electric energy and oil. It is here that the competition is, undoubtedly, keen but, as it seems to me, it is in this direction, by such improvements as I have indicated, that the Industry can compete, particularly when the advantages of the method of supply and the flexibility, cleanliness, reliability, and convenience of such supply are emphasized properly.

Service to Consumers: Showrooms.

I think I may say that the Industry realizes, and will realize still more, that the real basis of success lies in service to the Public. Now, I am a great believer in showrooms. On this subject and on those which follow, I am hoping to try to tell you something of what those companies with which I am most intimately connected have done and are doing. In the Bournemouth area which, as you know, extends over a considerable distance, there are seven showrooms—one each in the centre of Bournemouth, Poole, Boscombe, Christchurch, New Milton, Winton, and Ferndown. I will not describe these as several of them are illustrated in the brochure which will be handed to you later. In Croydon there are six showrooms, a seventh is in course of erection, and a site purchased for an eighth. The Barnet Company has only one showroom, but, there, reliance is placed—and with considerable success—on a travelling van which has done very good work. The Brighton Company has five showrooms and a travelling showroom, and all these companies are spending money on developing the system. In most cases, linked with the showrooms, are facilities for the collection of accounts which brings people into the building and also an organization of district fitters and stores which assists in dealing quickly with fitting work, complaints, repairs, &c.

Showrooms, properly conducted, can, in most cases, be made to pay directly, although this is not easy in small undertakings or where building development is slow. But a showroom to be effective must be conducted intelligently, and a showroom display requires skill and imagination. The advance in this direction in late years has been extraordinary, and I am sure that one of the primary objects aimed at should be that the apparatus shown is capable of being demonstrated, whether it is a cooker, a fire, or hot water appliances.

But, with all these factors, the most important is the personnel. In such cases as I have to deal with I endeavour always to impress on the staff and workpeople the fact that they represent the Company. The consumer regards the man he is in touch with as the Company, and a pleased consumer is an asset! There is nothing I like to see better than a letter from a consumer expressing his satisfaction at the way the work has been carried out, the care and attention paid to him, and that some act of courtesy or prompt attention has been appreciated. Of course, this is not all. A salesman has to be qualified, and I am sure that a complete knowledge of what he is selling is essential. Salesmen, moreover, like to be consulted as to the apparatus that is being bought, and salesmen's conferences should include always discussions as to whether goods will sell well, and as to their suitability; and suggestions to overcome difficulties, as and when they arise, should be welcomed. I am sure also that the B.C.G.A. Gas Salesmanship Course will be found to be of real value and a help to efficiency.

New Appliances.

New consumers involve a certain expenditure in connection with which concessions can be made. For example, taking again companies with which I am connected, in Bournemouth, in reference to services, we lay free 60 ft. instead of 30, as contemplated in the Statute. In building construction, where piping is put in for a minimum of five points, we make a charge of 5s. only per point where the cost is 50% higher. In another company it is our practice to make an inclusive charge for piping, and carcassing includes 25 ft. of service pipe on private property.

I am of opinion that money can be well spent in seeing that appliances and apparatus are modern and efficient. In Bournemouth we have a programme whereby we have, in the last few years, replaced 10,000 old and obsolete gas cookers with gas ovens on prepayment installations by larger and modern gas cookers, and 5,000 gas cookers on hire have also been broken up. This has been followed up by endeavouring to persuade consumers who own obsolete gas cookers or fires to purchase new ones, and, to help in this direction, we have made a small allowance to such owners.

In regard to the cost of fixing, in one of my companies we set off the cost of the sale of the fittings and fix free all apparatus purchased provided gas is in the house. The cost of fixing 2,150 pieces of major apparatus costs 0·094d. per therm on gas sold. Where the policy of the Company is not to fix free, the officers have found, in another case, a great advantage in having a scale of charges based on average cost, so that, when a consumer inquires what it will cost him to have the apparatus fixed, the reply can be given at once in the showroom without waiting for measurements or a detailed estimate. In another case, the work is done at cost with special terms to builders, and, in one town, the Company is now making a special offer to customers to fix free fires purchased during the summer months where the point is existing, and, further, a free period of hire of similar duration where additional fires are fixed on simple hiring terms.

In Bournemouth we have a scale of charges for extra fittings on existing points or where new points are required, and the charge is reduced according to the number of points on a sliding-scale, but with all charges fixed in advance; and for all work done in connection with the consumer's own apparatus, the charge is at actual cost. Where gas cookers are purchased or hired or gas fires are purchased, if there is an existing point, no charge is made.

Maintenance.

A still more important question is the attention which can be given to maintenance of existing appliances. In one case a system of universal service is in force where regular periodical visits to consumers' premises are made and the Company maintain and adjust all gas-burning appliances for lighting, heating, and cooking, whether owned by the Company or by the consumer. We provide the requisite labour for maintenance free, but the material necessary to be supplied is charged for except in the case of appliances on hire from the Company. This involves a considerable cost. The area is divided into districts and the work is carried out by working charge hands and each charge hand has a group of lads working under his control. These lads begin at 15 years of age, they work as fitters' mates with periods of training in the maintenance shop, and with practical examinations, the ultimate idea being that they will become first-class fitters in the Company's service. In the year 1932 the following was the work done in this Company:

Number of visits	92,338
Number of burners inspected	305,970
Number of cookers inspected	56,944
Number of fires and radiators inspected	23,910
Number of other appliances inspected	5,251
Number of mantles used	14,702

Wages (including period of training), £5,318.

There is a small profit on materials sold.

The average cost per visit worked out at 1s. 1¾d.; the cost of the scheme for the year ended 1932 was equivalent to a little over 0·57d. per 1000 c.ft. sold. The lads are expected to attend evening classes three nights a week during the two years of service during the autumn and winter sessions and then to graduate to the Technical College for Theory and Workshop Practice in the City and Guilds Course of Gas Fitting and Supply, and, ultimately, to take the Diploma of the Institution of Gas Engineers in their studies.

In Croydon there is in operation a comprehensive scheme of maintenance. Burners are partly paid for, and 11,000 odd consumers make use of this service. Gas fires, whether hired or privately owned, are examined, and, if necessary, are cleaned and adjusted free of charge, and, in every case where a main is re-laid, the service is examined and the whole of the appliances in the house inspected in the manner above described. In connection with water heaters a system of periodic maintenance has been in operation for many years with respect to circulating boilers, geysers, sink heaters, &c., and free attention is given to all hired appliances. In cases of privately owned appliances a charge of 4s. to 5s. per appliance per visit is made to cover the cost of labour. It was computed some time ago that the maintenance services undertaken by the Company cost, approximately, ¾d. per 1000 c.ft. sold, after allowing for all payments received.

Here, in Bournemouth, an inspector with a staff of 20 fitters is engaged in the house-to-house inspection and maintenance of all gas apparatus from service pipe to burner. This service is free in respect of the labour costs, materials for consumers' own fittings and apparatus being charged for at ordinary selling prices. New and additional apparatus is introduced by the fitters, who, in many cases, are able to effect sales. Upon the completion of the work at each house, the fitter makes out a record sheet giving full details of the apparatus and fittings in use, together with a note of any inquiry made by the consumer.

In Barnet there is a free inspection with a charge for material. These inspections are made in rotation whether asked for or not, but should, at any time, a consumer desire to have his apparatus attended to he is invited to send a printed buff card, with which he is supplied, to the office, when the matter has immediate attention. During 1932, out of 9,825 consumers, 6,000 premises were inspected and 36,342 appliances, including burners, were dealt with. The cost of this service works out at 0·050d. per therm. As regards the slot installations, 87% were inspected and 15,885 fittings and appliances were overhauled in relation to 4,050 installations, and the cost of this service per therm sold to slot consumers was 0·193d. This includes certain important work of permanent value so that the cost tends to fall.

Training Employees.

I have said something about the training of fitters at Brighton. In Bournemouth we have no actual system of apprenticeship, but a regular system of training. Boys are taken on at 14 to 14½ years, rising after a period of four years to improvers and, at the age of 21, they become improver fitters and, subsequently, junior fitters. The boys are specially selected and attend classes in Gas Fitting and Gas Supply, the Company paying the fees of all students who attend evening classes and we insist upon all junior district employees attending evening technical classes.

The showroom staff are recruited from the district employees, all very young men who have had preliminary training in the rental district office. These latter men gain practical district experience by being sent out as fitters' mates so that they may gain an idea of the maintenance district work in consumers' houses. All the members of the showrooms and the canvassing staff have taken the course in gas salesmanship arranged by the B.C.G.A.

In Croydon the gas fitters' apprenticeship scheme involves six months' training in the Company's own workshops, followed by a short course in the carpenters' shops when they are drafted out for practical experience on the district. Each apprentice is expected to attend the local Polytechnic in the following subjects:

First Year: English and Arithmetic.
Second Year: Mathematics and Carpentry.
Third Year: Elementary Physics, Gas Supply I. and Carpentry.
Fourth Year: Elementary Chemistry, Gas Supply II. and Technical Drawing.
Fifth Year: Gas Supply III., Experimental Science and Technical Drawing.

The distribution and sales pupils' training scheme at Croydon embraces the following: Young men of Matriculation standard are taken at the age of 17 to 18, and, under a five years' Deed of Pupilship, are given practical, technical, and commercial training in all the sections of the distribution and sales organization with a view to securing, in years to come, well educated and fully trained candidates available for the higher positions on the distribution side. Distribution pupils are required to attend Polytechnic Classes which will enable them to pass the examinations in Gas Supply as laid down by the Institution of Gas Engineers. It is noteworthy that these young men actually do practical work in the William Cash Workshops and on the district with main and service layers, fitters, &c.

At Croydon, gas salesmen have all been through the British Commercial Gas Association Course in Gas Salesmanship, and this is augmented by their salesmen's own local circle of study held periodically, and by district experience and practical contact with apparatus in the Demonstration Shop.

Staff conferences are held at Croydon and also at Brighton, at which new policies and plans are enunciated, and through the Co-Partnership Magazines and other methods the whole staff is kept in touch with the operations of the Distribution Department.

I suppose I need say very little about complaints, but we find here that house-to-house inspection, as would be expected, reduces the number of complaints substantially. Following what, I believe, is becoming a universal custom, card indices are kept for every consumer with a complete list of the apparatus in the house. For example: I am told by one of our officers that, should a consumer call at the office to complain about any particular piece of apparatus in his house, while he probably does not know any details of the apparatus, he is often somewhat surprised to find that he can be told all about it, size, make, &c., from the office card index. This is good "Service"!

Canvassing.

This is a matter with which you are all familiar. It needs trained men and systems vary in detail. We try to make all our employees canvassers but, in modern practice, it is necessary to have special men to attend to special work, as, for example, in connection with water heating. Inquiries noted by fitters can be followed up, and here, in Bournemouth, last year, inquiries of this character resulted in sales of £3000 worth of apparatus. In another Company we instituted a special canvass of premises with no gas installed on existing lines of mains, and we were encouraged by securing several hundred additional new consumers without having to lay any new mains. The following figures showing what we have done in Bournemouth during the past two years, where electrical competition is very severe, may be of interest:

Summary of Houses Built and Points Run.

Year.	New Houses Completed.	No. Piped for Gas.	No. Piped Gas Only.	Electricity Only.	No. of Gas Points.
1931 . .	1323	821	496	6	8279
		1317			
1932 . .	1167	720	445	1	7587
		1166			

Summing up what I have said and with some feeling that I ought to apologize to a technical audience such as I am addressing, where I have no doubt there are representatives of many Companies and Undertakings of very progressive methods, my remarks are more intended to emphasize what is, in my opinion, of the greatest importance, namely, service to the consumer in many ways such as I have indicated. I believe thoroughly that, although in certain directions competitive costs are an element in securing business, money may be in many cases more advantageously spent in giving additional and better service rather than in the direction of reduction in the nominal price of gas. As an example of what

I mean, I give the net cost of the " Service " which Barnet renders to the consumer, summarized as follows:

Free maintenance	0·079d.	per therm
Maintenance of gas service pipes .	0·047d.	,,
Free fixing of apparatus. . . .	0·094d.	,,
Service pipes and carcassing of new house.	0·288d.	
Less cost of statutory obligation	0·023d.	
	0·265d.	,,
	0·485d.	,,
Less profit on gas apparatus sold .	0·279d.	,,
Present cost of free service . .	0·206d.	,,

For another example, as I have told you already, the cost of the Service Scheme for Free Maintenance comes to a little over ½d. per 1000 feet.

The Industry owes a debt of gratitude to all the research work done by manufacturers for the improvement of apparatus, both in design and efficiency, and to the Industrial Centres which have done so much in proving the ability of the Industry to apply gas for innumerable industrial purposes. In their own workshops many of the larger companies have their own tests carefully made of all apparatus before it is sent out on to the District. This is a matter of real importance and ensures that the consumer gets the very best article delivered in an efficient condition.

Incidentally, while speaking of the service to the consumer, one can hardly fail to mention the importance of a fair field and no favour for the Industry. I refer, of course, to the right of the consumer to choose the form of light or heat which he desires to employ, and it is a matter for congratulation, I think, that quite recently this position has been recognized by the legislature in the passing of the Gas Light and Coke Company and Commercial Gas Company Acts of 1933. This is a thorny subject, but, the position being what it is to-day, I feel that all gas undertakers ought to see that, in their local sphere of influence, they are given the opportunity of supplying gas to any consumer who desires to exercise his statutory right to have such a supply afforded him.

Residuals.

I have said little, or nothing, on the subject of residuals, and I know some criticism has been directed against the British Commercial Gas Association on the ground that they have tried to popularize the sale and use of coke. On our present methods of working, coke is a necessary product, and I see no reason why the Gas Industry should not boldly claim to be makers and vendors of therms whether gaseous, sold in the form of coke, or liquid in the form of motor spirit. Some gas-works have for many years made motor spirit as a by-product of their tar refining plant. I believe I am right in saying that there are about four hundred gas undertakings each carbonizing 20,000 tons or more of coal a year, but less than a hundred of these are making motor spirit. I am of the belief that many more undertakings will develop this business and, provided that the sale of this spirit will take place under a method whereby a standard quality will be assured, there seems to me in this direction an opening for a very substantial development of what is, as I have already said, a national product.

Co-Partnership.

When we have trained our employees, there are many ways in which we can foster the spirit of co-operation, which should spread from the chief officer to the lowest employee. I am a great believer in the system of Co-Partnership, which here, in Bournemouth, and elsewhere has been most successful in every way. Our scheme, in broad outline, is very simple, the bonus being calculated as a percentage on salaries and wages at the same rate as the dividend on the sliding scale capital which, here, in 1932, was 9½%, equivalent to more than a month's wages to the employees. The amount so paid in 1932 amounted to £11,159 divisible among 694 co-partners. The employees under the scheme held stock in the Company to the value of £41,000. Coupled with the pension schemes, which I have in all the Gas and Water Companies with which I am concerned, I am confident that money so spent brings an ample return. Even if it failed to do so, it seems to me to fall within the duty which a Board of Directors owe to those who work for them in thus providing for their welfare, and the fact that there is a pension scheme, invested outside the funds of the operating company, is an enormous security and gives a sense of wellbeing to the employees. Such a scheme, I suggest, should be founded on actuarial advice and should aim at being actuarially solvent. Our Pension Fund here amounted on Dec. 31 last to £242,142, of which £227,634 was invested (market value, £266,760), and we are advised that the fund is adequate to meet our actuarial liability.

In another direction, the provision of sports grounds, with facilities for cricket, football, and other games, produces a spirit of comradeship amongst the employees, who are very keen on their Sports Club and its various activities. The Bournemouth Gas and Water Company's Football Club once reached the semi-final and once the final of the Amateur Cup, a fact of which they are, undoubtedly, very proud.

In conclusion, I should like to express my admiration and thankfulness for the spirit of keenness and devotion which, in my experience, I find throughout the officers and men who serve the Companies with which I have the honour to be connected. There is clear evidence of a determination to make the business a success and to make the particular undertaking one to be proud of. I believe this spirit permeates the Industry, and also this Association which I am now addressing. This, coupled with a like determination to give good service to the public, is a solid foundation on which to build, and, when these two conditions exist, I have no doubts as to the future usefulness and prosperity of the Gas Industry.

CONTINENTAL NOTES

GUM FORMATION AND COMPRESSED GAS.

A. Pignot, in the *Journal des Usines à Gaz*, 1933, 57, 414-417 (Aug. 20), in connection with bottled gas, refers to the fact that, during compression, gas becomes dried almost completely when oils are employed for lubrication. Gum is the more likely to be deposited the drier the gas. In a cylinder into which 300 c.ft. of gas are compressed daily, say for 25 days per month, ½ oz. of gum may gradually accumulate during the course of a year. Actually, when an oil-lubricated compressor was employed, it was not until the lapse of 7-8 months that trouble due to this deposited gum was experienced in the reducing valves fitted to the cylinders used in motor lorries. Cleaning of these valves is difficult, due to the low solubility of gums in the solvents readily available at gas-works, and it became necessary to employ acetone or tetralin. A further trouble associated with gums is their corrosive action on the metal of which the cylinders are composed.

The obvious remedy is to prevent formation of gums, and it is recommended that the lubricant employed in the compressors should be rich enough in water to prevent dehydration of the gas, but should at the same time possess adequate lubricating properties. Two satisfactory commercial products have been found:

(1) A colloidal suspension of oil in distilled water free from alkaline additions. After 10 and 15 days respectively of intensive working, two compressors showed no signs of heating up and no abnormal wear.

(2) A colloidal suspension of graphite in water. This is in course of investigation. It mixes well with the first preparation, and hence might be expected to give rise to a lubricant of very good quality. Unfortunately, the graphite deposits on the valve seats, and this limits its utility.

PUBLICITY AND INDUSTRY*

BY

A. P. RYAN

Publicity Manager to The Gas Light and Coke Company.

"POUND - A - MINUTE MAN COMES TO NOSUCHVILLE

NEW MANAGER HIGHEST PAID STAR IN THERM INDUSTRY.

"All citizens of Nosuchville will be delighted to hear that in future every Therm of gas they buy will have been personally supervised by Mr. N. Gineer, who has just been engaged by our enterprising undertaking at a record salary for the gas industry anywhere in the world . . . ."

I open my remarks with so highly imaginary an extract from a non-existent newspaper, because it brings out one of the most important points to be remembered about publicity. You cannot generalize on this intriguing subject without, first, emphasizing the great gulf that yawns between various industries in facing their problems of public relations. The cinema, apparently, finds it profitable to advertise that some of its employees are paid fantastic salaries. People will go to see a picture because they have been told that a performer earned more than can possibly be good for him or her. But the same people would not be tempted to make most other purchases by a similar gambit of publicity. On the contrary, they would at once set up a howl about the price of the commodity concerned. Yet they do not ask for cheaper stars—and, therefore, cheaper seats—at the cinema. Every business does (or should), of course, pay highly for leadership and talent, but it would, as a rule, be fatal to pay too much and to boast of such extravagance. I have quoted an exception to this rule, since it shows in extreme form the danger of generalizing about publicity. This warning having been uttered, I shall now venture to generalize.

£50,000,000 was spent last year, according to a very modest, reliable estimate, on advertising in this country. Much higher figures—even £250,000,000—have been given, and it is not easy to be exact over so complicated a calculation. Advertising uses many media. The daily, weekly, and periodical Press and the hoardings account for a lion's share of expenditure, while some money is spent by British advertisers on the cinema or broadcasting. The financial side of these activities can, at any rate roughly, be estimated on a national basis. There remains, however, an enormous area not covered by the £50,000,000. Pamphlets, leaflets, window displays, show cards, and other aids to sales are obviously publicity material, and, as they are the private affairs of the thousands of firms that use them, it is quite impossible even to guess at what they cost in the aggregate. Further, a very considerable and an increasing expenditure is incurred at points which lie on the border line between general policy, sales, and specific publicity.

Let me give a few examples. A firm employs a well-known expert to decorate its showrooms or to advise on the lettering for its account forms or for its vehicles. Again, distinguished visitors or the public at large are invited to visit a factory: some undertakings, including many in the Gas Industry, make a regular practice of showing parties round their works. It is not always easy for a single firm to allocate to publicity all its expenditure that might be placed under that heading. How impossible it is, then, to put forward a national figure.

£50,000,000 is only the foundation upon which we may build—with apprehension or with pleasure, according to our point of view—financial skyscrapers of almost transatlantic altitude. Even when expressed in another way, as less than 4d. in each £ of income, £50,000,000 is a lot of money. We in the Gas Industry contributed only a modest fraction of it. But we advertise through many channels, and so it seems worth while to ask ourselves what value we get from our expenditure. An occasional halt in the march of daily, detailed routine business is, I believe, valuable; by taking a general survey of our route, we can help ourselves to progress more efficiently when we get back into the road.

The Cinderella of Industry.

Publicity is part of the machinery of Distribution; and Distribution is still the Cinderella of industry. I do not say that Management and Production are the two Ugly Sisters; rather they are the older but no less eligible members of the family. Mass Production has a long tradition behind it, and it has been brought, if not to perfection, at least to a marvellously high standard of excellence. Mass Distribution is still young. Marketing and salesmanship on the scale that the modern world demands are not yet fully understood. Those of us who are engaged in distribution—and we include all sales and publicity men—are in a sense pioneers of industry. We are making our own traditions and working without old-established rules. That is why, to my mind, distribution is the most fascinating job in the modern world.

The Sales side of big businesses, although youthful, has more experience behind it than has publicity, which is nevertheless its twin—almost its Siamese twin, the two

* Before the Annual Conference of the B.C.G.A., Bournemouth, Sept. 26, 1933.

are often so hard to separate. A definition of Sales would be outside my present scope, but here is one of publicity. *It means telling people the truth about your business in so far as it concerns them, and making it interesting to them.* I ask you to examine that sentence very carefully, because every word in it is of practical significance in helping to make publicity our efficient servant.

First, telling the truth; let there be no mistake about that. I do not deny that temporary success in sales may sometimes be achieved by telling lies or distorting facts (which is much the same thing as telling lies). But no great industry or commercial enterprise can achieve success except on the basis of being absolutely truthful about what it has to offer. That is putting the matter on its lowest plane. As a publicity man I may be allowed to add that you will not get anyone who is keen and competent at his work to play tricks with the truth. I mention this because it affects the whole area of publicity. Happily, it has no practical bearing whatever on the problems of the Gas Industry. The Gas Industry sticks to nothing but the truth. It has a magnificent true story to tell, and it has leaders who would forbid it to tell anything else.

"They Don't Want to Read It."

Now to come to the second point in my definition—telling people the truth about your job *in so far as it concerns them*—please mark, especially, that "in so far as it concerns them." It is the first instinct of anyone who loves his own trade to assume that everyone else will love it in detail as he does. This is a healthy instinct in itself, but it is suicidal to publicity. When you are beginning to think what you will tell the public, you must tell yourself at the outset that the public is a much distracted man and woman with very little time to spend on your affairs, and no predisposition whatsoever to spend any time at all on them. Do not, therefore, anticipate that people will know anything about your business. However commonplace it may seem to you, it is no concern of theirs; and so the chances are that they have never bothered about it. "THEY DON'T WANT TO READ IT" is a warning kept permanently on the desks of all wise publicity men. Let us check this by considering what the man in the street knows or, rather, does not know about the Gas Industry. He does not know that he ought to say "gasholder" instead of "gasometer." He would not understand you if you talked about "radiants," although he is familiar with the objects themselves and thinks they are made of asbestos. Phrases like "on the district," "calorific value," "products of combustion," and "retort houses" are Greek to him. If you asked him to distinguish between the gas he gets through his meter and "coal gas," "town's gas," and "water gas," he would be stumped for an answer. If he were told that his gas undertaking possessed a "Booster House" he would, I am sorry to say, think that you were referring to its publicity department, for "boost" has only one meaning to the layman and one that has nothing to do with engineers.

Does the man in the street even know that gas and electricity are in this country dependent upon coal; or, if he does know, what about his wife? If every gentleman in this room took a census of the women in his area of supply, what percentage of them would be able to say that gas and electricity are dependent upon coal? Many of you will, no doubt, protest that really I am going too far and that, of course, all the world and his wife at least know this childishly simple truth. Well, I have no figures to back me up—and neither have you.

Let us leave it there while agreeing on the main point that no limits can safely be set to public ignorance of any industry. People do not naturally bother, I repeat, about what does not directly concern them. The practical use of keeping this fact before one in all publicity is twofold. First, it enables one to guard against allowing an idea, a phrase or even a word that will not be understood to creep into publicity material. Nothing kills interest so quickly as the introduction of the unintelligible; and remember—people do not tell you they have not understood your advertisement—they just let it drop from their minds. Secondly, it forces one to select from a mass of technicalities those aspects of one's industry that can be shown to concern the public.

Advertising to One's Self.

Here is a wide field, and to enter it brings me to the last part of my definition of publicity—making whatever one says interesting to the other man. How obvious that sounds and how often it is not acted upon.

Three parties are concerned with every advertisement—those who pay for its production, those who produce it, and those whose spending power it is intended to influence. This state of affairs creates certain pitfalls. Two of the three parties—manufacturer and advertising agent—consult and confer, while the third party—the public—is never present until it is too late for him to do anything except register his opinion on the finished advertisement. In theory it is easy to keep in mind that the absent partner is the one whose decision makes for success or failure. In practice, manufacturer and agent, being human, are apt to please themselves. The one, proud of his factory and his products, wants to have their technical virtues extolled in print and picture. Once he lets himself go along this attractive line, he is liable soon to be out of the public's depth. His agents, if they are weak or cynical, may let him rip, and the result will be an advertisement to please the Board Room and bore the public. Agents, again, without being either weak or cynical, may allow their own professional enthusiasm to run away with them. It is hard for a man whose trade is words or drawings to scrap what seems good in his eyes and likely to provoke admiration among other writers or artists, because it will not help to sell something. As many advertisements fail through too much cleverness as through too many technicalities. How tempting it is to advertise to one's self! What lots of advertisements appear for all sorts of commodities that have so evidently given pleasure to those who paid for them or those who made them but that will so evidently die of public neglect.

Amateurs in Advertising.

If your publicity appropriation is to be well spent, you have to fix clearly in your eye the people you are seeking to interest and then to tell your story in a way that will persuade them they are missing something valuable if they do not listen to you. Every advertisement ought to be scrutinized from this point of view, and none should be passed if it falls short of this standard. *A man who brings a fresh mind to the industry but knows how to write is, as a rule, better than anyone in the industry at preparing an advertisement. It is almost impossible for those who are steeped in the atmosphere of an industry to speak about it interestingly to the public. Writing is a highly technical business. You would not employ an amateur as an Engineer. Your danger of breakdown will be no less great if you have your advertisements written by unprofessional hands.*

Let me offer a few tests of whether an advertisement will influence the mass of people for whom it is meant and who DON'T WANT TO READ IT:

1. Do you, although you know nothing and care nothing about the subject, find yourself interested as soon as you open the page of a newspaper in which it appears, or slit the envelope from which it dropped, or pass the hoarding on which it is displayed?

2. Do you, once your interest has been caught, find yourself reading on and understanding what is said, exactly and easily?

3. Do you feel that those responsible for it really believe every word they have written and every picture they have drawn? Insincerity is absolutely fatal to effectiveness in an advertisement.

4. Does it definitely invite or persuade the reader to take action? That is to say, does it leave him wanting to buy something, knowing where he can buy it and how much it will cost him? All advertisements need not pass this particular test, since some of them may legitimately provide a favourable background for specific sales.

5. Is it driving home a message that has been made public before? I put in this point not, of course, because all advertisements should say something that has been said in the past, but as a warning against a very general tendency on the part of advertisers to get tired of what they are saying. Don't think that because you said something in public last week or last year and naturally remember it yourself, that everybody else will necessarily remember it too. A message is often only beginning to get home when those who are sending it out are getting tired of it. Repetition is an integral part of publicity, just as " follow through " is as much a part of a successful stroke at golf as the approach to and actual striking of the ball.

Gas—an Industry Revolutionized.

Where does the Gas Industry come into the focus of this picture? It should, I believe, come prominently into the foreground. No industry needs publicity more continuously, and none has a better story to tell. We have to keep two distinct aims before us in enlisting public interest. Our industry has a long record behind it of which it is justly proud; but much more significant from the publicity angle is its position in the present. *The Modern Gas Industry has hardly greater kinship with its past than has the modern oil industry with the days of oil lamps.* Our gas works are triumphs of scientific production. Our engineers and chemists treat coal in a manner undreamt of by their early predecessors. " Gas works " is a most inadequate term for the complication of chemical processes of economic value to the modern world that go on in our works and are all based on British raw material, coal. We in the Industry all know this, but the public do not, and we should never forget that the prestige of our Industry depends to a very considerable extent on our using publicity to keep people abreast of our progress.

Against that background, we can advance our direct sales campaigns, always striving to put novelty and interest into our announcements, and here, too, remembering that we are more aware than is the public of our recent advances. Many people—I think the great majority—still know the gas fire as a not very beautiful black object, and the gas water heater as a " geyser." Gas irons and other appliances are not as familiar as they should be. It is no use our saying we sent out a leaflet about them at such a time or put an advertisement out the other day in our local paper. The test is: Do our consumers as a whole know what we can offer them and why it is worth their while to come to our Showroom and see for themselves? Until our publicity can pass that test, it has not done its duty. Perhaps there has not been enough of it. At any rate, let us keep on looking at it so far as possible through the eyes of the public.

Electricity and Publicity.

Competition is a factor we have, of course, always to keep in mind. Here I want to say frankly that our electrical friends who are still very new to the world of distribution, have not all yet learnt that publicity has its rules no less than other spheres of business. I have seen an electricity advertisement in which a young lady, symbolizing the Watt (or was it the Amp?), was banishing fire from the house. The introduction of electricity was, that is to say, being advertised as a means of cutting out fire risks. I will not comment upon this, beyond remarking that we can afford to ignore it. Other claims for electricity deserve to be more closely watched. You may, for instance, find an electricity undertaking telling people that electric cooking involves less shrinkage of meat than does gas cooking. A recent comparative test made by Electrical Engineers, details of which were published in " The Electrical Times " for June 22, 1933, showed that this is nonsense. " There is no great difference in the loss of weight with electricity or gas " to quote " The Electrical Times." Similar demonstrations had, incidentally, been given conclusively years ago, but had, it would seem, escaped the notice of some of our competitors.

Now I hope we shall never hear again of this claim; but if it is made anywhere, the local gas undertaking will, in my opinion, be perfectly justified in giving the utmost publicity to the opinion of electricity experts which I have quoted. Another point sometimes made is that electric fires need no flues. Well, electricity is a fine thing, but it cannot do away with the need for ventilation. I was glad to read support of this in " The Electrician " for Aug. 4, 1933, where in a leading article the writer said " we should feel happier as to the outcome (of pushing electric fire sales) if we were satisfied that those interested in electric space heating equipment were sufficiently alive to the importance of combining adequate ventilation with radiant heat." We know that gas fires by ventilating a room help to make its atmosphere healthy. Let us continue to bring out this fact emphatically and hit hard at anyone who seeks in any way to discredit it. The B.C.G.A. and some undertakings have worked and are working hard on this good point.

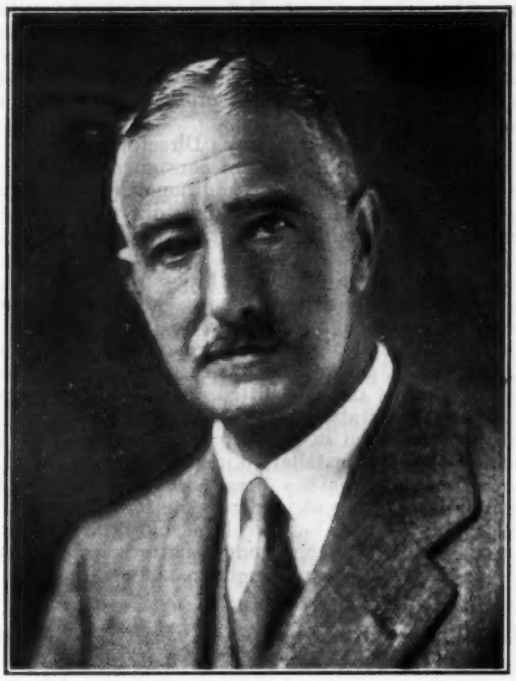
We know, further, that gas cooking, apart from its immensely greater efficiency, is much cheaper than electric, and we have exact figures, prepared by independent cooking experts, to support us. If we come across cases where this fact is denied specifically or by implication, let us correct it.

A slanging match between two great British industries, like gas and electricity, is, of course, unthinkable. But there have been signs that electricity does not scruple once again as too often in the past to make claims not based on proven facts and even to launch unjustified attacks on gas. We should not stand for such unfair trading.

Publicity is Not a " Stunt."

Finally, let me ask you to take your publicity very seriously indeed. This, like so much I have said, sounds obvious, but there is a pretty general tendency in business of all sorts to regard publicity as no more than a series of stunts. Some people are even a bit doubtful in their hearts as to whether it is quite dignified. Englishmen hate the idea of trumpet blowing, and, despite the tributes paid in speeches to publicity, there remains a suspicion in some good minds that it smacks of trumpet blowing. The position of publicity is not altogether unlike that of body-line bowling. We protest in public that body-line bowling is all part of the game, while, in the privacy of our own friendly circles, some of us are—to put it mildly—less enthusiastic. If these remarks have had any effect, they will have shown that publicity is an entirely desirable and an absolutely necessary part of modern industry. My hope that they have done so is reinforced by the fact that the Gas Industry, wisely recognizing many years ago that publicity must serve it, proceeded to take very efficient steps to translate the recognition into practice. The B.C.G.A. have done remarkable work for a quarter of a century, both in the direction of national and district publicity as a background for local publicity and in that of helping undertakings to run effective local campaigns. The work of the B.C.G.A. is only just beginning.

A Postscript.—Publicity should run throughout our business. Every letter we write should be considered in the light of what I have said, and every telephone call we answer; and every employee should remember that he is a publicity man. Here we are lucky indeed. For I believe that our men on the district in many places are and in all places could easily be trained to be as good publicity allies as any industry has the luck to employ. They know their job and they know how to treat the public. If all sides of our publicity are as well handled as the personal contact side, then we shall indeed be on our toes as an industry.



DEFENCE AND DEVELOPMENT OF OUR BUSINESS IN CARDIFF*

BY

H. D. MADDEN, M.Inst.C.E., M.I.Mech.E.,

Chief Engineer and Manager to the Cardiff Gas Light and Coke Company.

There is a very wise and true saying, " That the price of progress is eternal vigilance; " and in these days of intensive competition it is very desirable that all responsible officers of Gas Undertakings should review and amend where necessary the conduct of their daily business with this axiom as the keynote.

Maintaining the Goodwill of Individual Customers.

The goodwill of every individual consumer must be eagerly sought and secured in each and every business contact. This axiom should emanate from the Board-room, and should be constantly impressed upon the mind of everyone from the Manager to the latest fitters' apprentice. Enthusiasm for gas service, and the constant endeavour to obtain the friendship and goodwill of the consumer, should be the order of the day for all ranks.

The gasfitter comes in direct contact with consumers more often than do some other members of the staff, and the mentality of the gas undertaking is assessed in these personal contacts. Therefore it is vital that fitters should be carefully selected, and very carefully trained and educated during the period of their apprenticeship.

The Fitter as Ambassador.

My Company recruit boys from Secondary Schools, and have been able to train and discipline them for a year in the workshops devoted to consumers' service, before allowing them out with the gasfitters.

During apprenticeship they have to attend a special course of instruction at the Technical College, comprising physics, chemistry, and workshop mathematics, and later the theoretical and practical work of gasfitting and plumbing; the Company paying their fees and allowing the necessary leave of absence to attend at the College for two afternoons a week during the two winter terms, over a period of five years. These courses are so arranged that at twenty-one years the youths can sit for the Gas Supply examination of the Institution of Gas Engineers. They are reminded from time to time that if they do well, they are preparing themselves for positions higher than that of a fitter, and in fact inducement is held out to them to qualify ultimately for positions on the Sales of Gas Staff.

If this matter appears to be unduly stressed, it is because the writer visualizes the enormous future importance of youths when, as fitters, estimators, or salesmen, they become later on ambassadors of the Undertaking to the public, and make their impress on the mind of the individual consumer.

If goodwill exists throughout a united staff, it begets enthusiasm, but this must be continually fostered. This is done by internal lectures to Sales Staffs and Fitters, who are taken into confidence and are told in advance of any special campaign that is to be launched. No new appliance is added to the sales list until all its points have been indicated to them and discussed.

The gasfitter's close and continual contact with the consumer enables him to be a very valuable additional salesman. In recognition of this factor, for several years past my Board have offered a series of prizes for fitters who bring in enquiries for new apparatus which mature into sales, and also a team-work prize for the foreman of the district which has attained the highest sales in the half-yearly period. The results have been surprising, and enthusiastic rivalry exists between the competing districts. Thus all are brought to assist in the maintenance of goodwill between the Company and its consumers.

The co-partners at the Works are not overlooked in this matter. At intervals domestic gas apparatus displays are shown in the main messroom, and one of the leading sales staff gives them a short after-luncheon talk to tell them the points of development. This procedure secures the intelligent interest of a very large body of men who, in turn, disseminate this knowledge to their personal circle of relatives and friends.

The Importance of the Showroom Window.

In the creation and maintenance of this favourable atmosphere for gas in the mind of the general public, my Company have five showrooms and offices, one situated in the City in a prominent thoroughfare, and four in the suburban and outside areas, where service and advice are readily obtainable.

A reputation for attractiveness is built up for the windows of these showrooms, and great care and thought are given to each display. The pulling power of a good window is enormous, and increasingly so when the expectation of the public is whetted by striking effects.

Seasonal Campaigns.

Whenever it is desirable to inaugurate a seasonal campaign for any application of gas as a fuel—say, water heating—the campaign is organized on the following lines:—

In the first place, internal meetings are held of salesmen, gasfitters, showroom attendants, &c.; they are taken into consultation and the plan is outlined; discussion is invited, and it usually produces valuable

* Before the Annual Conference of the B.C.G.A., Bournemouth, Sept. 27, 1933.

suggestions. Secondly, the showroom window displays are carefully drawn up, and display cards, backgrounds, and material prepared.

Special advertisements are planned ready for both the leading district newspapers, and also for the suburban press. Specially devised pamphlets relative to the uses and advantages of the special gas apparatus are printed and enclosed in addressed envelopes ready for posting; the object being to co-ordinate the force of the publicity effort by having the showroom windows, press advertisements, and the delivery of the pamphlets all commencing on the same dates, with the staff and fitters already well informed to deal intelligently with any enquiries.

Special Display, Queen Street Showroom Window.

As a matter of fact, a domestic water heating campaign was launched this summer on the lines mentioned, and there was an immediate public response, with a rapid rise in the sales of water heaters as a result.

In regard to this, it must be stated that the whole scale of charges for apparatus was very carefully examined, and the periods of hire purchase extended to bring the quarterly charge to a point where it appealed to the consumers' pockets; but it was the resultant force of the combined lines of publicity that gave the sales impetus.

The point to be emphasized is that spasmodic advertisement is not so valuable as co-ordinated publicity, and this fact is true equally of local advertising and of the reinforcement afforded by the B.C.G.A. advertisements.

Popularity of Hire Purchase.

On the question of gas appliance sales, we have found the extended period of hire purchase to be very popular with the consumers, and have developed this to cover cookers, fires, water heaters, and even large systems of central heating for churches, &c. Lighting points and switches are fixed on easy terms of four quarterly payments. The charges for domestic appliance fixing have been carefully analyzed over a long period, averaged out, and incorporated, and are covered by the quarterly hire-purchase payment.

This practice is invaluable in closing a sale transaction—what is more irritating to the consumer when selecting a cooker or a geyser than to be told " Fixing is extra—we will send an estimator and let you know what the cost will be, &c."? Goodwill goes with " inclusive charges," and any other method means lost sales.

When a showroom attendant or district salesman can quote right off for any apparatus, and say, " Madam, there is no additional charge for fixing—on payment of the first quarterly instalment the apparatus will be fitted complete for immediate use," our experience satisfies us that the sale is closed far more readily.

Service to Slot Consumers.

Turning to the slot or prepayment consumer, it must be remembered that approximately 80 per cent. of the homes throughout Great Britain are of the artizan and cottage type, where economical methods are a necessity. These form the backbone of the slot consumers, and we have endeavoured to render equally good service to these as to the ordinary consumers and to foster their goodwill.

Some eight years ago my Directors decided to modernize the whole of the slot consumers' fittings and lighting points, and to grant additional lighting fittings where they were asked for. This work took over two years to complete, with the most earnest desire to finish it at the earliest possible date. This done, they were offered also a gas wash-boiler on hire-purchase terms that were very favourable; the response was, and continues to be, very gratifying.

The provision of the 5-radiant gas fires, fitted free, at a rental of 1s. per quarter was the next development—approved fires of this size fitted on a sheet-metal stand are eminently suitable and efficient for the size of the rooms usually found in prepayment consumers' houses.

Our prepayment installation includes a cooker, and for some years past this has been a black cooker with a white enamelled door of modern type for all new installations; and also we have replaced old-type cookers on old installations with this modern pattern in large numbers, the old type being brought in and scrapped.

Enamelled Cookers for Prepayment Consumers.

During the progress of this work, it was discovered that a large number of the prepayment consumers desired a totally enamelled cooker. This question was carefully considered and investigated, and eventually six makes of cooker were selected for this service, and a special quarterly hire-purchase decided upon. A special canvass and inspection was commenced on four districts, and fitters talked about it at prepayment consumers' houses where they called to carry out jobs.

That this facility to the slot consumers was appreciated is indicated by the fact that we have never advertised it in press or brochure—the demand de-

Building Trades Exhibition, Cardiff: Water-Heating Apparatus Display.

scended like an avalanche and continues in a regular heavy stream.

The importance of this arrangement is that capital expenditure in the installation cost is considerably reduced, while the consumer, being provided with and owning an enamelled cooker, takes pride in the care of it, and thus becomes wedded to gas for cooking, rendering her proof against the blandishments of our competitors.

By these systems and methods of service, and by the recognition of the axiom that the slot consumer is entitled to exactly the same immediate and courteous service as the ordinary consumer, we have endeavoured to foster and increase their goodwill.

The Industrial Load.

Another section of consumer for whom our watchword is Good Service is that covered by the title of Industrial and Commercial.

As you are probably aware, my Directors have, in support of the National Scheme, placed their physical laboratory and industrial showroom at the service of those surrounding Gas Undertakings in the South Wales and Monmouthshire area who contribute to the scheme; and we, as the centre, carry out research work on the problems that arise in heat treatment.

Industrialists and commercial businesses are visited and advised on all heat-treatment processes, and many visit the industrial showrooms to see processes carried out under actual working conditions.

The Demonstration Room is fully equipped and supplied with high and low pressure gas and air and electric power, so that every facility is supplied for practical application. Practical tests and advice are given free of charge, and although this development of activity is young compared with the domestic load, it promises, by investigation, experience, and hard work, to open very profitable fields for heat-treatment processes by gaseous fuel.

Rival interests are active in the exploration of this field, and close work and closer co-operation with the other centres is an immediate necessity if our industry is to reap the full harvest of load in the direction of applied heat in trade and industry.

Methods of Charge.

The charges for gas play an important part in development work, in either the domestic or the industrial field. My Board have recently given this matter serious consideration, and our scale of charges has been revised to encourage consumers to employ gas more freely for the many purposes wherein it is pre-eminent.

The new charges are on a descending scale according to the quarterly quantity consumed, and the prepayment consumer is catered for by the fact that the ordinary scale of charges becomes applicable to him after the first 8000 c.ft.

In the Appendix these are set out, but prices for 1 million c.ft. and upwards are specially quoted. It will be seen that step-rates have been preferred to two-part tariffs and block rates. The chief objection to step-rates has been removed by " marginal relief " allowances which will be self-explanatory.

Lectures and Demonstrations.

Towards the Press we endeavour to foster and maintain friendly relations, and on a number of occasions their columns have contained articles relating to gas written by members of the Gas Industry.

We always find the Press ready and willing to publish news about gas that really is news, and at all times to give the truth to their readers if given facilities to ascertain the truth quickly and easily. It is up to us to keep in touch with the Press so that they do not publish that which is untrue, or the half-truth that is worse than a lie, about matters in which we are concerned or interested.

It is no use keeping the Press at arm's length, or ignoring their existence, and then getting cross because they publish some misstatement or exaggerations or stupid story with which somebody else supplies them.

We have to recognize that the job of the Press is to interest the public and that it is our job to help them to do so.

We have endeavoured also to make close and friendly contact with the many Societies, Institutes, and Women's Organizations which are in existence in and around our area of supply. Topical lectures, illustrated by lantern slides, on gas works and manufacture are frequently given.

Invitations to visit the works are given to these organizations and to schools, and very full advantage is taken of these opportunities. During the past year several thousand school children, accompanied by their teachers, have been interested visitors, and on leaving our premises visitors receive a copy of an illustrated brochure of the works and also the B.C.G.A. pamphlet entitled " The Romance of a Lump of Coal."

A Lady Demonstrator is a valuable asset—we offer the services of such an officer to all consumers who order new cookers. She also gives demonstrations of cookery and household baking regularly, either at the showrooms or at small halls specially hired in the district, notably in those areas where prepayment consumers predominate.

No opportunity is lost of giving her services at Cookery Centres and Girls' Institutions. Every week a special menu for each day is drawn up, printed and issued to the showrooms and offices, and this publication has become a regular feature; consumers in large numbers call for them every week, and the Company also provide a folder which contains the recipes for 52 weeks. A small cottage adjoining the Chief Offices has been made the headquarters of the Lady Demonstrator, and here she is able to receive lady consumers by appointment and demonstrate under home conditions.

Regular use is made of the literature provided by the B.C.G.A., and especially those specialized booklets that are prepared for Doctors, Architects, Builders, the Clergy, &c. At the same time we establish close contact with students in the School of Architecture, and keep these budding professional men well posted in the latest phases of heating and ventilation. They are encouraged to visit the Physical Laboratory, where practical tests are arranged and demonstrated.

As a means of intimately approaching the public, the pages of periodicals circulating in Churches and other organizations are used for district publicity, and we find bazaars and similar functions are excellent centres for exhibits and demonstrations.

Maintaining Prestige.

Speaking broadly, indeed, we do all we can to make ourselves—as individual directors, chief officers and company's staff generally—well known to and popular among the public we serve. We believe that it ought to be true in every area of supply that gas people are to the fore in every sphere of public service and public activity, so that the prestige of the company and the industry is maintained and " progressive spirit," " public spirit," and " good fellowship " are thoroughly associated in the minds of the general body of consumers with the gas undertaking.

In these days, specially, prestige is of great importance to the Gas Industry, and we must take a broad view of methods of enhancing it. That cannot be done by shutting ourselves and our officers up in boardrooms and offices. We must play our part and see they play theirs in the public life of the day.

Carcassing and Equipping New Houses.

The Company enter into agreements with builders in regard to the carcassing of new houses, which is thus carried out to our specification. Additionally, in a number of cases by mutual arrangement, houses are equipped with cookers and other suitable gas appliances, on sale or return, and the builder is paid a commission on the value of appliances sold.

The whole of our area of supply has been canvassed and surveyed, and the result of house-to-house visits recorded on a card index system which is a valuable source of reference for finding potential new gas-consuming apparatus.

I should like to record the value we have found in the Salesmanship Course of instruction organized by the B.C.G.A. The whole of our Sales Staff, and indeed others connected with this Department, were given the course, and unquestionably they all derived great benefit from the instruction received. In fact, they became better salesmen than they were, imbued with new enthusiasm and a new ideal of the meaning of service.

Meeting Competition: Good Service and Cheap Gas.

It is written that " Faith without Charity is nothing worth." May we also, on a similar line of thought,

express the opinion that cheap gas without service is of little value. It has been said that the tramp always walks with his back to the wind, but for us with our faces towards the future, and believing in the efficiency and service of our apparatus, and making sure that the cost of gas per thermal unit is at a low figure, we can go forward vigilantly and fearlessly to meet the strong competitive activities with which we have to battle.

APPENDIX.

Scale of Reduced Charges for Gas.

(To have effect from and after the readings of meters for the June Quarter, 1933.)

To consumers using Ordinary Meters :—

Gas Consumed per Quarter on any Single Premises.	Per Therm.	Per 1000 C.Ft.
	d.	s. d.
Under 10,000 c ft (47 therms) .	8·8	3 5·36
10,000 c.ft and under 20,000 ,, (94 ,,) .	8·6	3 4·42
20 000 ,, ,, 50,000 ,, (235 ,,) .	8·4	3 3·48
50,000 ,, ,, 100,000 ,, (470 ,,) .	8·2	3 2·54
100,000 ,, ,, 200,000 . ,, (940 ,,) .	8·0	3 1·60
200,000 ,, ,, 300,000 ,, (1410 ,,) .	7·8	3 0·66
300,000 ,, ,, 400,000 ,, (1880 ,,) .	7·4	2 10·78
400,000 ,, ,, 500,000 ,, (2350 ,,) .	7·2	2 9·84
500,000 ,, ,, 750,000 ,, (3525 ,,) .	7·0	2 8·90
750,000 and upwards	6·5	2 6·55

For quantities substantially in excess of the foregoing, prices will be supplied on receipt of necessary particulars, and are dependent upon the circumstances in which gas is required.

MARGINAL RELIEF — Where any consumption calculated on the above scale involves a higher total cost than would be payable for the minimum consumption at the next succeeding rate, the amount charged may be reduced to such lower total cost.

Notice to Consumers of Gas Using Prepayment Meters.

The Company announce an important concession to coin meter consumers, who, from 1st July, 1933, will benefit by a reduction in the charges for all gas consumed in excess of 8000 c.ft. (37·6 therms) per quarter to the same rates as charged to ordinary consumers.

Revised Scale.	Per Therm.	Per 1000 C.Ft.
	d.	s. d.
Under 8,000 c.ft	11·2	4 4·64
8,000 c ft. to 10,000 ,, ...	8·8	3 5·36
10,000 ,, ,, 20,000 ,, ...	8·6	3 4·42

Discussion.

Mr. T. P. Ridley (Commercial Manager and Secretary, Newcastle-upon-Tyne and Gateshead Gas Company): I should like, in the first place, to congratulate Mr. Madden upon his admirable paper. It is one of general utility, from which every undertaking can take ideas and can derive benefit. Since the distribution of the paper, some of the ideas contained in it have been circulated to our sales staff for consideration and report. Mr. Madden, in the early part of the paper, refers to education, and he also finishes on the same note. It is right that he should do so, because this question of education, and particularly the education of salesmen, is most important. The Newcastle Company stresses it so strongly that the Directors give special permanent additions to salaries when certificates are obtained. They give £5 per annum addition to salary for a commercial certificate, £10 for a technical-commercial certificate, and £20 for an advanced technical certificate. These are permanent additions to salaries, and are kept entirely separate and additional to anything which may be obtained otherwise.

I think the work on the propaganda side which is most appreciated in Newcastle is that of lectures and demonstrations which we have arranged, under the auspices of the City Health Department, at Welfare Centres. Here our lady representatives give lectures on the question of selecting the best kinds of foodstuffs, the economical cooking of them, and good buying. This work is appreciated enormously by Medical Officers and Health Visitors. Indeed, one Health Visitor said to me the other day, "You are doing in a practical way what we have been telling these people verbally for years that they ought to do."

The most effective work we do, I think, in the way of obtaining orders—and this will interest Mr. Ryan, who, in his admirable address yesterday, wondered how far it was carried out by the Gas Industry—is to send out each half-year about 15,000 letters, by post, to consumers who have not particular appliances or have not as many appliances as we think they ought to have. That we can tell from our index of appliances on consumers' premises, to which Mr. Madden has referred, and which is most necessary for propaganda purposes. These letters must be connected up with the Press advertising of the day; but, what is still more important, they must be followed up by a personal call. This method is the one which brings us most orders.

Why Not a Block Rate?

There are two questions I should like to ask Mr. Madden. One is, why he prefers a step rate to a block rate. After three-and-a-half years' experience of the block rate, we have found it more effective in clinching orders than our old step rate. We find that the salesman, when in touch with the consumer, discusses the particular block price which the additional consumption is likely to come into, and that block rate, of course, is lower than the rate would be under a step rate system. The consumer, I think, does not give the credit he ought to give to the reduced price which he gets on his existing consumption if you adopt the step rate. Again, when dealing with factories, you have instances of one department of a works in which you want to encourage some additional furnace output, and the particular block rate is discussed with the Departmental Manager. That is the only price which is discussed between him and the salesman, and he does not care about whether the existing consumption to the other departments of the factory is going to benefit; he is only thinking of his own department, and we have found it more effective, therefore, to adopt the block rate.

The second question I should like to ask Mr. Madden, if he is at liberty to answer it, is what are the circumstances in which he would quote special prices for consumptions of over 1,000,000 c.ft.? I do not ask the prices, but the circumstances in which he would quote special prices, and whether central heating is one of them.

The Case of the Small Company.

Mr. Alfred Thomas (Engineer and Manager, Wellington (Som.) Gas Company): Quite a large number of those present represent small undertakings, and they must all envy Mr. Madden's scheme of sales and his progressive methods, because, under their limitations, and also for financial reasons, they cannot copy them. I am the representative of a small undertaking having about 2000 consumers, and we have, as far as we can, adopted hire-purchase schemes on a two or three years' basis. Although the business progressed fairly well, still it was not enough, because the purchasing power of the people did not encourage sales on a two or three years' scheme. When I adopted that we were subjected to an onslaught by the electricity grid. My Company has a large number of obsolete cookers, especially in houses fitted with prepayment meters, and the electricity undertaking attacked this class of consumer, with, I am sorry to say, a certain amount of success, so that something had to be done. Therefore, I explored the situation and found that I could put on hire-purchase an all-enamel cooker with heat controller for the small sum of one penny per day, payable quarterly, over a period of five years. This scheme was not particularly advertised, but after the first fifty cookers had been supplied the tremendous advance in the quality of the cooking advertised itself to all our customers, and within the short space of three months, 22% of the total number of slot consumers had these cookers. I have mentioned that we have done nothing in the way of propaganda, because the good effect of the splendid cooking is advertising the scheme, and I hope and believe that within a reasonable time every prepayment meter consumer will have one of these high-grade cookers. That is what you might call the defence of the business; at any rate, that is my idea. In adopting such a scheme as this, however, the small undertaking is severely handicapped with regard to finance, and I am hoping that one day the whole of Great Britain will be linked up in financial areas, because I believe that unless such schemes are carried out a tremendous amount of business in regard to high-grade apparatus will be lost.

Councillor H. B. Bowles (Chairman, Goole U.D.C. Gas Committee): Mr. Madden stresses particularly the advantages of the personal contact between the undertaking and the consumer, and I do not think these advantages can be over-estimated. Publicity values, in my opinion, are in the following order of percentages. I put the order of percentages as follows: (1) Word of mouth, personal talk, and demonstration, 50%; (2) window display, 25%; (3) personal letters, 15%; (4) Press advertising, 10%. The last-named may seem very small, but if you work out these various percentages and properly charge the items, I think you will find it is not very far wrong. Many undertakings are small ones and have not a large sum of money to spend on Press advertising, and I doubt very much whether the local body would agree to even 10% of the money available being spent in the Press. In regard to street lighting I do not see why we should allow the electricity undertakings to get away with coloured lighting. I should like Mr. Madden to say if it is possible to use a coloured bulb or globe in some way or other for street lighting.

Simple Hire and Hire-Purchase.

Mr. J. H. Clegg (Engineer and Manager, Burnley Corporation Gas Department): The paper we have listened to this morning is from beginning to end a very commendable one, and one such as we should expect from Cardiff, having regard to its reputation. The results we hear of at Cardiff are a reflection of the efforts which are directed in its administration, as set forth in the paper. There is nothing in the paper with which we can disagree, but there are points in which the practice of undertakings varies. We are not all agreed as to the advisability of the rental of appliances. Some years ago, for a short period, we sent out gas fires in Burnley on rental, but from the very beginning the idea was only to popularize and bring gas fires to the notice of consumers. After two or three

years, when that experiment had achieved its purpose, we again resumed our long-period hire-purchase for all appliances, and we have found no difficulty in disposing of them in that way. We carry on up to a period of 10 years for the sale of cookers, and 5 years for gas fires and similar appliances.

One important thing on the sales side is that of the facilities which should be given to the prepayment consumer. I come from an area which is very depressed at the present time, and I find that consumers have difficulty in paying even such a small amount as 1s. 6d. per quarter. The result is that many of the appliances which were being purchased on the long-period system are being returned to us, or would be returned to us, as a default against payment. As we had had some experience of the sale of certain apparatus to prepayment meter consumers, we gradually increased that system, and now we go the whole hog and are selling all-enamel cookers to prepayment meter consumers. We give 26 c.ft. for a penny through the prepayment meter in the ordinary way, but anyone who wishes to purchase a cooker has his meter set at 20 c.ft. per penny. A certain quantity of gas has to be consumed, after which the appliance becomes the property of the consumer. The average period of purchase in this way appears to be about 8 years, but some prepayment meter consumers are able to purchase their appliances in three or four years; on the other hand, some will take ten or eleven years. Some doubt may be expressed as to the life of these appliances, but, after all, it is merely a matter of providing sufficient overheads to cover the commercial risks. The success of the scheme in the past twelve months may be judged when I say that we have sold 3500 appliances, and since 1923 the number of live accounts, not hire-purchase but prepayment purchase, has increased from 2300 to 18,700. Our total sales last year amounted to £33,000 and we have records during the past fourteen years of having disposed of 25,000 modern cookers to 33,000 consumers.

In my opinion, the fringe of the gas fire business has scarcely been touched yet, and we are hoping to develop it on the same lines during the coming winter. The same remarks apply to the sale of switches for lighting. We have had a very successful run on these, and have disposed of 6000 lighting switches. I feel that many gas undertakings expect a great deal of their sales staff and their employees; but although the staff may endeavour to create a prestige for the Department by their personal touch with the consumers and their enthusiasm, every facility should be given by the demonstrators for the salesmen to obtain business. After all, you must offer to the public something which is a convenience to them at a cheap price, and give them facilities for obtaining appliances on the lowest possible terms. I have in mind particularly methods of charging for gas, and I am glad that Mr. Madden has stressed that particular point. Whether the system is a block system, a step system, or a two-part system does not matter very much to my mind, so long as facilities are given to consumers to obtain gas on reasonable terms when they desire to substitute gas for other fuels.

I am particularly interested to see that Mr. Madden can obtain youths with secondary school education for employment as gasfitters. Unfortunately, the experience in our district is that boys with a secondary school education will take any kind of job so long as it is in an office; they appear to have a very strong objection to learning a trade, but, after all, a secondary school education to a tradesman enables him to lift himself very considerably among his fellows. I think, also, that those undertakings which can afford to employ more than one of a staff should do so. It is essential that there should be at least one lady demonstrator on the staff, and that lady demonstrator need not necessarily be a qualified cookery demonstrator, but she should be able to visit the houses of consumers and help them in connection with difficulties concerning the use of cooking appliances.

An important era is opening for the use of gas for industrial purposes, and it is one to which I am looking forward enthusiastically. I am confident that every undertaking in the country, whether it considers itself to be supplying an industrial town or not, has a potential increase of consumption of at least 20% if it provides proper facilities for the purchase of industrial appliances, not necessarily on hire-purchase, but by giving easy facilities—there are ways and means of doing that—and by providing favourable tariffs. In that connection, as I have mentioned before, I find the four-part tariff system, as outlined by the National Gas Council, to be a most suitable medium for the allocation of charges to industrial and commercial consumers. The Industrial Centres appear to be developing rapidly, and it will not be very long before we shall have accomplished something which has been talked of for the last 5 years. The development of gas in the Industrial Centres is particularly desirable, not only in the case of small undertakings, but even in the case of larger ones, who very often do not carry the staff or maintain the demonstration rooms which are necessary to the disposal of apparatus.

Another important feature, to my mind, is that this development will act as a spur to those undertakings who at the present time are a drag on the Industry—because there is no blinking the fact that we have undertakings which are definitely a drag on the Industry. I can mention instances of firms with whom I wished to do business, and, having convinced the local Manager that it is to his advantage to use gas for a particular process, I find the scheme is often turned down because some other branch, in another town, has tried it and found it to be either unsuccessful or that the cost is too high, due to the fact that the problem has not been tackled in the most suitable manner. That is a very serious matter, and one which causes great hardship to undertakings who desire to be progressive.

Mr. J. Sandon Stubbs (Secretary and Treasurer, Liverpool Gas Company): In my view, the time has come for some sort of co-operation between the small companies. The leaders of the Industry should turn their attention to some type of regional planning. We have started that already in the industrial scheme, and I suggest we might do the same thing in regard to the services of lady demonstrators. The small companies cannot afford to engage fully-qualified lady demonstrators, but a number of small companies could have one lady demonstrator among themselves, or a large company could have a number which they could lend out to the smaller companies for a reasonable fee. I should like to point out that we have no fear in Liverpool of our business receding, because we are taking every possible means to modernize our ideas in advertising.

The All-Gas House.

One form of meeting competition has been very successful indeed in Liverpool—the all-gas house. I am not referring to the effort of a gas company taking a house, fitting it up, and keeping it as a sort of showroom after it has been sold; you want to do more than that. In Liverpool we keep in touch with the Press, and the Press take one of these all-gas houses from a builder on a large estate, quite independently of the Gas Company. They run various competitions in connection with it, giving prizes, say, of a gas cooker or a gas fire. Of course, the manufacturer who supplies the cooker will advertise in the paper, the manufacturer who supplies the gas fire will advertise, the water-heater manufacturer will advertise, and, in fact, everybody concerned will advertise in the paper. We have had probably fifteen of these all-gas houses during the last five years in different parts of the city, and I can assure you that the result has been highly successful. Last week we persuaded the Lord Mayor and Lady Mayoress to open one—even though the electricity undertaking in Liverpool is run by the municipality. We reckon to make an actual profit on the sales of apparatus alone from such an all-gas house at least ten times the value of what it has cost us, to say nothing of the gas consumption.

Another thing we have found successful is keeping in touch with women's institutes. This autumn we are giving 29 lectures to temperance associations, women's clubs, &c., and we find we get a tremendous amount of business in that way.

Direct Mail Advertising.

We find, if we take a small district and send 500 letters, and a canvasser calls during the next week, that we always get a large number of orders. We took one street only a short time ago, and the canvasser brought in orders for 22 water heaters at once—a really remarkable result which I did not think was possible.

I should like to ask Mr. Madden two questions that interest me. The first is with regard to the training of his gasfitters. We do that, but how does Mr. Madden deal with the surplus labour he must have in the summer time? We can employ all we have in the winter, but we cannot possibly find work for them all during the summer.

The other question is with regard to selling high-grade cookers to prepayment meter consumers. It is an excellent idea, but how does Mr. Madden collect the rent on those cookers, because it is very difficult to have a cash as well as a credit account with one consumer?

Mr. C. S. Shapley (Engineer and Manager, Leeds Corporation Gas Department): I should like to ask the author how many consumers are able to avail themselves of the reduced price after the consumption has reached 8000 and 10,000 c.ft. per quarter respectively. It seems to me that very few of the slot meter consumers, under the tariff given in the paper, would ever get any reduction in the price of gas. Incidentally, in Leeds the price of gas to prepayment consumers is the same as to ordinary consumers, and I would suggest to Mr. Madden that he may be crippling his business by charging over 10d. per therm to slot meter consumers. I think the slot meter consumer is a potential user of more gas, and he should be encouraged and should not be charged a high rate for his gas. The reason why we sell gas to the slot meter consumers in Leeds at the same price as to the ordinary consumers is that the slot meter mechanism does not give the same trouble now that it did in the bad old days when it first came on to the market, and the number of complaints per day in Leeds is now only of the order of 20.

I should like to stress the importance of letters, and I should give them a higher percentage value than the Chairman of the Gas Committee at Goole has given them, particularly if they are signed in person. I sign 60 or 70 letters every day, and the fitter follows them up the following morning. What is it that is preventing our selling more gas? I am going to say that one of the biggest snags in the modern house is the unhealthy flueless room, and I want the members to back the National Gas Council and the Association in their support of the Coal Utilization Council, which is trying to get a flue in every room in all the new houses that are being erected in connection with slum clearance. ["Hear, hear."] With a flue you can have a gas fire or a coal fire, which give ventilation, but you all know that an electric radiator does not ventilate a room. We want to stress this question of ventilation.

Industrial Gas Business.

Mr. Ralph Halkett, Junr. (Assistant General Manager, Sheffield Gas Company): In one of the areas which my Company supplies outside the city of Sheffield we have found in the course of conversation with slot meter consumers that, rather than have a reduction in the price of gas, they would prefer the

price maintained as it is and to have a good rebate, which seems to give them the impression that they are getting something for nothing; and I venture to suggest that this principle often applies in other directions in connection with business. The title of Mr. Madden's paper rather suggests to me that he wants to encourage us to disclose information rather than to criticize what he has said, and in view of this I will give you a few examples of the increased business which my Company has succeeded in obtaining recently. With one diversion, I propose to deal wholly with industrial gas, for which, as you know, my Company is noted. As you are probably aware, our annual output of gas in Sheffield is almost equally divided between domestic and industrial consumers, and I can assure you that both classes of consumer are dealt with equally fairly and both receive as much attention as we can possibly give them.

To deal with the one diversion I mentioned, it is in connection with a large hotel in Sheffield, which has recently installed gas fires in all bedrooms. No doubt there are larger hotel installations, but in this case we are installing 70 gas fires.

To deal with the industrial side, we are still forging ahead in Sheffield, and recently we have put in quite a number of large furnaces, some dimensions and uses of which may interest you. At the present time the use of gas for industrial purposes in Sheffield is increasing at a phenomenal rate. During the past two years, and particularly during the present year, town gas has been used successfully to replace solid fuel, either directly or indirectly, in many cases. The large increase in the amount of gas being used is by no means due only to the re-starting of existing gas-fired furnaces, but it is due principally to the wholesale conversion of solid fuel fired or producer gas fired furnaces.

At the present time four of the larger firms in Sheffield are converting entire shops to use town gas, necessitating the erection of batteries of furnaces, and not merely individual furnaces. The work being done is of the heavy type, such as the re-heating of heavy billets for forging, drop-stamping, and tyre expanding. Sheet furnaces fired by town gas are becoming the preferred type and have been installed by some of the largest firms in the city, and at the moment new gas-fired sheet furnaces are being installed in the works of two other Sheffield firms.

The sizes of these furnaces may be judged from their gas consumptions:

Tyre expanding furnaces . . .	30,000 c.ft. per hour
Billet re heating furnaces . . .	20,000 c.ft. per hour for a single furnace
Drop stamping furnaces . . .	40,000 c.ft. per hour
Sheet heating furnaces. . . .	10,000 to 20,000 c.ft. per hour

These are real consumers, well worth having.

The increase in the use of gas is not confined to the steel trades. Furnaces are being installed, or have been recently installed, for the annealing of non-ferrous metals such as nickel-silver, and these furnaces are incorporating a method of bright annealing by atmosphere control developed in the Sheffield Gas Company's Research Department. Much activity has been shown in the development of the recently patented method of heat-treatment of all kinds of steels, and furnaces have been installed in works for the heat-treatment of high-speed steels, dies, and stainless steel strip. The process is at present being applied to the continuous heat-treatment of alloy steel wire. Town gas has also been applied successfully to the annealing of glass, and is being applied in a brewery for the boiling of beer.

With such an industrial load as we have in Sheffield you will realize that we pay a great deal of attention to the design of the apparatus which we have to supply to our consumers. We have a Research Department of our own, and I do feel that the attention of manufacturers is not so great as it might be to the design and modernization of their furnaces. I do not think myself that any great advances have been made during the past few years, but, like everything else, trade progresses, and we must have modern appliances to meet its requirements. Most of the modern work we have dealt with has resulted from experiments in our own laboratory, and I wish the manufacturers would help us in this direction a little more than they do.

Mr. R. J. Auckland (Secretary, Cardiff Gas Light and Coke Company): In regard to Mr. Ridley's question as to why we prefer the step rate to the block rate, the answer, I think, is that Mr. Ridley himself, in the first case, chose the step rate. Probably, after some experience, we may find that, like him, we should do better with a block rate. But the great thing that appealed to us in Cardiff was that the step rate is simpler.

I was very glad to hear from Mr. Clegg that he prefers hire-purchase. I rather imagine, from what he said, that he thinks we in Cardiff prefer ordinary rental, but I think Mr. Madden has made it clear in his paper that we prefer hire-purchase. Modern housewives will have something up-to-date.

In reply to Mr. Shapley's question as to the number of prepayment consumers using more than 8000 c.ft. per quarter, the answer is that only a very small number come into that category. At the same time, I cannot agree with Mr. Shapley that the prepayment consumers throughout should pay the same rate as the ordinary consumers, because if you work on that basis you are going to cripple your possibility of increasing your industrial supplies and giving lower rates for the higher spheres of use.

We were asked by Mr. Stubbs how we collect our cash from prepayment consumers if we let them have apparatus on hire-purchase. Obviously, that does entail dual book-keeping, but I do not think even Mr. Stubbs would mind this extra trouble of book-keeping where business is to be obtained, and we have found, as some other speakers have found, that the prepayment consumer *will* have a good cooker. It is definitely a menace to our business to allow prepayment consumers to continue with old-fashioned and ill-considered appliances.

Virtues of the Block Rate.

Mr. J. W. Whimster (Engineer and Manager, Bath Gas Company): There are one or two points I should like to speak about. First of all, there is the question of the block rate and the step rate, and I agree with Mr. Ridley that the block rate does induce consumers to increase their consumption, and then, of course, they get their gas at the lowest prices. This year we have introduced a system varying from 5½d. to 3½d. on a block system, and we hope in that way to get a considerable amount of central heating load. Arising out of that point, I should like to know whether the B.C.G.A. can do anything in the way of educating heating engineers. We know we have done so with the architects and builders, but nothing has been done with regard to heating engineers; and in most new buildings the architect leaves the decision on heating to the heating engineer. We had rather an unfortunate experience in that connection recently. In this particular case the heating engineer put forward figures showing that it required 230 therms of gas to give the equivalent heat of one ton of coal or coke. On the other hand, instances have been given quite recently of installations where less than 100 therms of gas have given the equivalent efficiency of one ton of coal or coke. As a matter of fact, we have had a good deal of difficulty recently in getting central heating at 3½d., due to this lack of information on the part of heating engineers.

Another matter I should like to mention is that we hear of companies spending a considerable amount of money on service in many ways. But the point that is in my mind is whether we take the steps we should take to see how effective that service is. I take it that service has for its main object the sale of more gas; are we selling gas to the consumers in the quantities that we should? Mr. Madden has said that cheap gas without service would not get the consumption. That is quite true, but will dear gas, with all the service in the world, get it? Therefore, how much of the consumption is due to cheap gas and how much is due to service? I take it that you want both, but I think that service without gas at the lowest price will never get there.

Sir Francis Goodenough: I can assure you that the question of co-operative action with the object of assisting the smaller undertakings is in our minds and will not be lost sight of, because in these days the smaller undertakings need assistance more than ever.

A Real Leader.

I should also like to offer a very sincere word of thanks to Mr. Madden for his excellent paper. It has given us an opportunity of seeing what a sound, comprehensive, well-thought-out, and planned and co-ordinated policy, based on the sound principle of effective service to the consumer, can do, and I agree with Mr. Whimster that it is of great importance not merely to have a service, but also to see that it is an effective one in so far as increased consumption by the consumer is concerned. Another test of the effectiveness of service, I was going to say, is the number of complaints per consumer. The manager of any gas undertaking should keep a careful note of all complaints, as a test of whether the service is good, and in that connection I suggest that you should ask for complaints, and not merely wait for them to come in. You should take every opportunity of letting your consumers know that if they are not satisfied you want to know it. The Gas Light and Coke Company used to send out a follow-up letter after the installation of every piece of apparatus, asking if it was giving satisfaction. I remember an occasion on which one member of the staff said to me, "You are simply asking for complaints." I replied, "Yes; if there are any complaints let us have them and deal with them." The number of complaints is the acid test of business competence. A really progressive Board should have a sound policy brought continuously up-to-date and put into practice by a well-educated, fully-trained personnel, enthused, inspired, guided, and encouraged by a leader. Mr. Madden is a real leader of team work, and not the driver of a gang, and that is what is so specially needed in the matter of salesmanship—that every man should feel he is one of a team, loved by the leader, encouraged by the leader, helped by the leader, and inspired by him; and that is Mr. Madden's strength in Cardiff and in South Wales. He is a real leader.

There is only one point to which I want to refer in the discussion and that was mentioned by Mr. Halkett—namely, his success with hotel heating. Bournemouth has really set an admirable example with regard to gas fires in hotels, and if you take the "A.B.C." and look down the advertisements of hotels and boarding-houses you will continually come across the expression "gas fires in every bedroom;" that is one of the best pieces of advertising to be found anywhere, and we do not pay for it. In London two or three years ago there were over 30,000 gas fires in hotels, small and large, and a hotel proprietor said to one of the staff on one occasion that it would not be long before no hotel could attract customers unless it could say that it had gas fires in all its bedrooms. There is a

very fine field for business there if you will go for it, and, moreover, it is a most valuable form of publicity.

While we are assembled here, may I express your thanks to the President for the way in which he has presided over these meetings. [Applause.] I think you will all agree with the wisdom of the policy this year of having only one paper at each session and plenty of opportunity for discussion.

I will now ask you to tender your very cordial thanks to the President for his services during the year and for the manner in which he has conducted these meetings.

The vote of thanks was carried with hearty acclamation.

The PRESIDENT: It has been a very great pleasure for me to be here and to welcome you to Bournemouth; and I quite concur, if I may be allowed to do so, in the expression of opinion that the papers we have had and the discussions which have followed have been really useful. I do think this method of having one paper to be discussed at each session is definitely helpful.

In the appendix to the paper Mr. Madden sets out a system of charging, and it is interesting to observe, with regard to ordinary consumers, that the price goes down from 3s. 5·36d. to 2s. 6·55d. per 1000 c.ft., which is equivalent to a discount of 25% for large quantities over 750,000 c.ft., and special terms are offered for still larger quantities. If I am right in this, I am not quite clear with regard to the prepayment consumer, who is charged 4s. 4d. per 1000 c.ft. for a consumption of under 8000 c.ft. and 3s. 5d. per 1000 for a consumption of over 8000 c.ft. Does that mean that the reduced price applies to the next 2000 c.ft. or does it relate to the whole of the 10,000 c.ft.? That, at any rate, is not quite clear to me, although it may be to others.

Reference is also made in the paper to the fixed scale of charges which is immediately available. We have had experience of that elsewhere, especially in Croydon, and I can entirely confirm what Mr. Madden says—that it is of enormous advantage in the showroom to be able to tell the potential consumer exactly what he has to spend in order to get what he is asking for. By this system he can be told at once what it is going to cost him. I should like to express our appreciation of what Cardiff have done in setting up a physical research laboratory. Cardiff came forward most commendably and said they would do their share in the West of England, and they have provided these facilities, which are available to the neighbouring undertakings.

Again I think the system they have adopted for providing additional lighting fittings to the slot consumer is one that is undoubtedly sound, because it must lead to increased consumption. With regard to cookery centres and the publication of recipes, that is an interesting and rather new idea which I think should be very useful to many of us. Again, the supply of fittings to builders, on sale or return, is an interesting point; but one would be interested to hear whether any difficulties arise with builders who, for some reason, may desire to return the apparatus which they have received on approbation; perhaps Mr. Madden can tell us whether in fact the methods suggested are such that they sell a considerable number of appliances in that way.

Reference was made by Mr. Clegg to the four-part tariff system of charging, but it does seem to me that, while that may be a useful method of calculating the rate of charge, it is following the methods which have been adopted by the electrical undertakings, and I think there is a good deal of dissatisfaction among the users of electricity at the complication of the systems of charging which are in force. I think a more simplified system is best; and we do not want necessarily to follow the electrical people in some of their methods.

The remarks by Mr. Stubbs with regard to the all-gas house and the Press represent a novel idea to me, and it is interesting to know that he is able to do it without any cost to the Gas Company.

The question of hotel bedroom heating was mentioned by Mr. Halkett, Junr., and I may say that Mr. Moon has been extraordinarily successful in Bournemouth in getting gas into hotels. At times we are putting gas fires into hotel bedrooms here in hundreds, and you can see the results, as Sir Francis Goodenough has said, in the free publicity we get in the advertisements of the hotels in the "A.B.C." Guide.

PRIZES FOR COMPLAINTS.

Complaints have been mentioned by Sir Francis Goodenough; we in Bournemouth call for complaints. What we actually do is to offer prizes—this may sound rather extraordinary—to our employees who bring in the largest number of complaints, the reason being that the people who go round—the collectors, &c. —to the various houses make a practice of asking whether everything is entirely to the satisfaction of the consumer, and the result is that they bring in a considerable number of what are termed "complaints," but which are really not complaints, in one sense, at all; at the same time, this system does ensure, so far as we are concerned, that everything is working to the entire satisfaction of the consumer. If it is not, we endeavour to put things right with the least possible delay.

The vote of thanks was carried with hearty acclamation.

MR. MADDEN'S REPLY.

Mr. MADDEN, replying to the discussion, said: I find it even more difficult to reply to the discussion than it was to write the paper. However, the discussion has been so good that I am more than amply repaid for the time and trouble involved in preparing the paper, and I feel that its object has been fully achieved.

In the first place, Mr. Ridley, of Newcastle, stressed the point with regard to the education of salesmen, and I am entirely in agreement with him. As to the question of charges, Mr. Auckland, my colleague, has explained that point; but I would like to say that before we adopted this step rate, Mr. Auckland, as usual, gave great attention and care to the different aspects of the question of charges as they applied to Cardiff and our system there. Mr. Ridley also asked what special circumstances arise to warrant the quotation of special prices for consumption of over a million c.ft. We have, as a matter of fact, one or two peculiar instances in Cardiff. For instance, we have a works which we supply in bulk through the station meter, and they have a special rate. We also have a very large brewery which is being fitted up to take some 15 million c.ft. per annum through one pipe. There are also many points that arise in this connection, such as the grouping of concerns, and, therefore, we deal with this matter according to the conditions that prevail.

In reply to Mr. Thomas, of Wellington, I am entirely in agreement with him. I am not a "hire man" at all. The only hire that we have concerns a few hundred cookers which are the remnants of the ordinary hire instituted some years ago, and there are also the gas fires to the slot meter consumers at 1s. per quarter. The figure of 5s. per quarter for an all-enamel cooker for slot meter consumers is practically our price for this class of consumer now.

Then, in regard to Councillor Bowles, of Goole, he does not disagree with me, but has given us a percentage valuation of different forms of publicity, such as word of mouth, personal advice, window displays, and letters. I agree with him fairly well, but one thing he has left out is service. I do not know whether that is covered by his "word of mouth," but service is the great thing. Then he asked me a question with regard to coloured lighting for street illumination. Of course, it is quite possible to have any colour you like, but if you do use colours you are going to lose a great deal of the efficiency of the lighting.

I think that what I have said with regard to hire answers Mr. Clegg. Lighting fittings are paid for very often from the rebate in the case of slot meter consumers. That same point was mentioned by another speaker. We do not alter the slot meter but allow a rebate, and any apparatus the consumer wants is paid for in that way. Sometimes there is a little money left over and the consumers think they are getting something for nothing, and it pleases them.

Mention was made also by Mr. Clegg to the difficulty of getting youths from the secondary schools to take up fitting work. The fact is that we can get them because we undertake to train and educate them up to a fair standard, and we promise them that if they show the necessary ability they will be put into the Sales of Gas Department and will have an opportunity of reaching the highest positions there. That is why we can attract them. On the industrial gas sales side, however, we have to have men up to the B.Sc. (Engineering) standard. We have two men holding the B.Sc. (Engineering, London) degree on that particular staff at the present time, and they are necessary as trainees, because it will take seven years to train an ordinary youth up to that position, and it is far better to get them from the technical colleges or universities to start with.

I agree with everything Mr. Stubbs has said; but with regard to the point he mentioned concerning the ability to keep all the gasfitters employed during both winter and summer, so far we have not found any difficulty, and we have been able to absorb all who have come along, with very few exceptions—and these exceptions have gone to other undertakings, who have been glad to have them from our training school. In the summer we find plenty of work because during that time we take the opportunity of examining every capped-off service in the district, and there are many other jobs that we do. Moreover, there is the holiday period in the summer, when the fitters are away, and we have even found ourselves short-handed on those occasions.

I was very glad indeed to see Mr. Halkett, Junr., make his first appearance on the platform publicly to-day. I have already replied to his point with regard to the rebate from slot meters; and as regards hotel fires I quite agree with him. Some of our leading hotels in Cardiff have gas fires in every room, and the last thing I had to deal with before I came to the conference was to put a scheme before the largest hotel in Cardiff for 70 gas fires. These involved five years' hire-purchase in order to bring the quarterly rental as low as possible. In this hotel during the summer we have been running gas pipes for lighting, and we have made them large enough to deal with the fires as well.

I should like to thank Sir Francis Goodenough for all the help he has given me, not only at this meeting, but at all times; especially have I appreciated his great friendship and help all my life.

The President I should like to thank for the very wonderful visit we have had to Bournemouth.

With regard to the graduated scale of payment under the prepayment system, also mentioned by the President, the first 8000 c.ft. is charged at the full price, and then the additional quantity in the range is charged at the lower price. As a matter of fact, we find that many people living in medium-sized houses prefer the shilling-in-the-slot meters, and to that extent we cater for them in advance.

Annual Dinner of the B.C.G.A.

The annual dinner was held in the Pavilion, Bournemouth, on Tuesday, Sept. 26. The President was in the Chair, and there was a company of over 400 delegates and guests. The Chairman expressed his regret at several absences, and mentioned particularly his two colleagues on the Bournemouth Board, Sir Charles Morgan and Sir John Withers, both of whom were indisposed. He had also received a telegram from Mr. Hall Caine, M.P. for the East Dorset Division, expressing his regret at his inability to attend. It was also a great regret to him that Mr. Henry Woodall was unable to attend, also through indisposition.

The Loyal Toasts having been honoured,

Dr. E. L. BURGIN, M.P. (Parliamentary Secretary to the Board of Trade), proposed "The Gas Industry," and in the course of a highly amusing speech said: I rise with a great sense of pride and responsibility to propose this toast and to couple with it the name of Sir David Milne-Watson. The Gas Industry is a great industry and there are certain reasons why it should become more and more important. This country is not blessed with resources of liquid or gaseous fuel, and it therefore becomes a matter of great importance that there should be a well-managed industry making use of the natural resource that we have—viz., coal. In addition to the enormous advantages to the domestic consumer of being able to make use of a fuel by the simple expedient of turning on a tap, there is the enormous advantage of gas as an industrial fuel, with the ability to be able to control temperatures in accordance with scientific knowledge, and again by the simple means of a tap. You are the only industry which can supply these requirements entirely from home resources. I doubt whether we should stress too much the value of the nationalist tendency. No doubt merely to live unto yourselves would be a selfish end, but at the same time the whole tendency of the world as I see it at the present time is to give added importance to industries which do not depend on a raw material imported from abroad. [Applause.] The Gas Industry has a deservedly high place in being able to supply light, heat, and power entirely generated from home sources. I would also add a word to the effect that you are an industry essential, as any thinking man or woman in this room will recognize, to the highest interests of national defence. [Loud applause.]

Having said that, let me mention a reason which has given you an incentive to make your Industry more popular. You are not as far advanced as you might be, but you are doing tolerably well—[laughter]—and a reason which, in my judgment, will make for your Industry being more progressive still is the mere existence of the fuel oil tax of 1d. per gallon. It has been well said that when there is no tax on fuel oil a man does not hesitate about putting in an oil-burning furnace, but when a man has the pleasure of knowing the Member for this Division—the very gallant General Sir Henry Page-Croft—he knows that a tariff or a tax, scientifically manipulated, may not always remain at 1d. [Loud laughter.]

Now let me mention legislation. ["Hear, hear."] You have had a Report substantially in your favour. There is a large measure of agreement as to what should be done. Legislation would seem to be indicated as the next step, but what is one of the objects of the projected legislation? It is this: To enable those controlling gas undertakings to have the same power that is possessed by other industries—viz., to meet exceptional demands by exceptional consumers by charging exceptional terms for the supply. [Applause.] There is no reason why gas undertakings should not be allowed to supply at off-load periods bulk supplies to willing consumers on favourable terms—["Hear, hear"]—and if legislation can be forthcoming, that no doubt would be one of the topics to which it would be directed. You cannot expect important announcements which really reflect Cabinet policy to be given to you through the mouth of a Junior Minister, but I can tell you that consideration is being given to this Report. The consideration of legislation is in hand and in due course and at the proper time an authoritative announcement will be made. [Hear, hear," and laughter.] Possess your souls in patience. Make good your case by statistics and argument, and avoid, if possible, clamour, "because it ain't no good." [Laughter.]

I cannot conclude without reference to at least two of the many great personalities which adorn this great Gas Industry. The first is your President-elect, Col. Stephenson. He had a great and glorious record during the war. In industry, also, he is one of the men who get things done. By the Sheffield Gas Act of 1931 Col. Stephenson had shown himself to be a pioneer who is not daunted by local opposition and difficulty. That Act is a model of daring triumph, and it puts into force the recommendations of the Departmental Committee. Having said that, I now come to the gentleman with whose name I associate this toast, Sir David Milne-Watson, the great voice of the Industry, the presiding genius over a mammoth undertaking supplying such God-forsaken areas as Canvey Island and Staines. [Loud laughter.] The records show that he is invariably of assistance to Government Departments—higher praise I do not know—[laughter]—and may I add that it has been the pleasure of the Departments, in turn, to help him occasionally when matters have come forward concerning the Gas Light and Coke Company in Parliament. It would be presumptuous of me to attempt in any way a record of the service Sir David has given to the Gas Industry. He has made the Industry peculiarly his own, and I believe his Company supplies something like one-sixth of the entire gas consumption of this country. I therefore say in all sincerity, as a young man at the bottom of the ladder to one balancing at the top, that the thanks of all are due to Sir David for such a record of integrity and achievement as his.

I want finally to ask you why you call yourselves the Gas Industry. Surely you are much wider than that—["Hear, hear"]—and I suggest you should be thinking in terms of the "treated fuel industry," and that you should think of yourselves as supplying not only gas but solid fuel and liquid fuel according as the whim, need, necessity, or production of your consumer demands, and that you should not go on perpetuating a name which represents something like one-third of your activities. [Loud applause.] I hope that some of the points I have made may fall on receptive hearers, and that underneath the necessarily light-handed touch you will feel and realize that there is a Department which is proud of your Industry and desirous of paying a tribute to it.

Sir DAVID MILNE-WATSON, replying to the toast, said: I rise with a considerable amount of diffidence, as you may well imagine, to reply to the very humorous and at the same time serious speech which has just been delivered by the Parliamentary Secretary to the Board of Trade. I am sure we are all very much encouraged by knowing the high appreciation the Board of Trade has of the Gas Industry. We may have doubted that occasionally—[laughter]—although I do not say we have, but still it is very pleasing indeed to hear such generous things said of our achievements in the past, and the hopes expressed by Dr. Burgin for the future. The only comment I should like to make in this connection concerns Dr. Burgin's declaration that "in due course and at the right time" it is hoped to introduce legislation. This rather reminds me of the invitation you sometimes get to dinner, "You must come and dine with us some night." [Loud laughter.] I suppose we must leave it at that and hope that we are going to dine in the banquet hall of legislation some day with the Government. [Renewed laughter.] I am sure we shall all be very pleased to see this long promised legislation—["Hear, hear"]—and to know it has been placed on the Statute Book. At the same time, I for one know perfectly well that in the long run the future depends not so much on legislation as upon our own power of work and power to convey our commodity to the public. The Gas Industry, started more than 100 years ago, has flourished through many, many dark periods in the industrial history of this country, but I believe that never was it in a more healthy condition than it is to-day. I am not a pessimist and neither am I an undue optimist, I hope, but I do know of no industry in the country which has greater vitality and resourcefulness than the Gas Industry. Of course it is not all plain sailing as it was in the old days. There is no monopoly to-day. We are having to struggle, but I think it is good for us to have to struggle. ["Hear, hear."] If we put our house in order, if we do regional planning, and if we continue to develop and seek out all the new knowledge that comes along and try to occupy new fields, I believe we have very little to fear in the future.

I should like to say that we very much appreciate what the Government did in imposing the tax on oil. It certainly does give us hope to begin to believe that we shall be able to compete in the realm of fuel. My belief is that if we continue to give service to the public, if we get our prices low and our efficiency high, we have a very great future before us. At this period in our history it is more important than ever that we should support national parties. If it is necessary in this room I would earnestly plead to those present—and to the many more who are not present—that we should give the fullest possible support to this Association which has done such excellent work in the past and is capable of doing even more splendid work in the future if we will only support it in every possible way, financially and otherwise. The meetings this year are being held under very happy auspices. There is no more successful company in the country than Bournemouth, and as I came here to-night by road I marvelled at the district they have to develop in the Counties of Hampshire and Dorset. I would like to pay a tribute to Mr. William Cash, the Chairman, and to Mr. Moon, the Engineer and Manager, for their part in the successes already won.

I will conclude by saying that I am sure the Industry will agree with me in expressing our deep thanks to Dr. Burgin for giving us such a memorable speech. We will look forward—remembering what he said—with hope to the realization that his invitation to dinner in the legislative banqueting hall will soon be forthcoming. [Loud laughter.]

The PRESIDENT, proposing "The Local Boroughs," first associated himself and his colleagues of the Bournemouth Gas Company and the Association with what Sir David Milne-Watson had said in appreciation of the presence of Dr. Burgin and the speech he had made. At the same time he expressed his own personal thanks to Sir David Milne-Watson for being present at the dinner, because he looked upon Sir David as the leader of the Gas Industry. Remarking that it had been the greatest possible pleasure to the Gas Company to have the Conference in Bournemouth, Mr. Cash added that a very great deal was also owing to the local boroughs of Bournemouth and Poole for the entertainment and comfort of those attending it. Speaking of the work done generally by local authorities, Mr. Cash added that such companies as the Bournemouth Gas Company also did

a great deal of good in many ways. For instance, that Company last year paid the sum of no less than £30,000 in rates, which, he contended, was a considerable contribution to the work of local government.

The Bournemouth Company was started in 1863, and was incorporated in 1873. As evidence of the growth of the district, the population of Bournemouth in 1851 was 695. In 1901 it was made a county borough, and in 1933 the population was returned at 120,000. At the last census the population showed an increase, over the previous decennial period, of 22%, and this was one of the largest increases of any town in the United Kingdom. The reason, he believed, was the wise development of land in the neighbourhood, and the wise administration of the Borough. In this connection some information as to the growth of the Company might be instructive. The sales of gas in 1904 were 572 million c.ft.; in 1914 the quantity was 1114 million c.ft.; in 1924 it was 1971 million c.ft.; and in 1932 it was 2799 million c.ft. Incidentally, Mr. Cash had been highly amused in looking into some old records to find that in the case of a certain company in 1852 the Directors received 5s. per meeting provided they attended within a quarter of an hour of the time fixed for the meeting, the time to be determined by the office clock. [Laughter.] In 1865 the Directors went on strike and remuneration was increased to 10s. per meeting; as there were meetings once a month they received the magnificent remuneration of £6 per annum for their services. This also was a Company which had kept pace with the development of the particular area, because, whereas in 1894 the sales of gas represented 31¼ million c.ft., in 1932 the figure had increased to 578 millions. The particular undertaking was the Carshalton Company, which had been taken over by Croydon. Another Company was Banbury, which he read in the "GAS JOURNAL" had been celebrating its centenary. This Company had also made a striking advance in output and, moreover, there were some interesting notes in its records. For instance, in 1846, "It shall be directed that the Chairman be requested to inquire into the expense of an ear trumpet for the lamplighter." [Loud laughter.] If anybody could suggest the connection between an ear trumpet and lamplighting he would be glad to hear it.

Turning to Poole, Mr. Cash referred to the great convenience of having the gas-works on the quayside, the old Poole Company having passed over to the Bournemouth Undertaking in 1902 largely on the suggestion of Col. Winder. The result had been that there were now no gas-works in Bournemouth. Having given a few historical details of Poole, Mr. Cash mentioned that the population at the last census was 57,258, which represented an increase of 31% over the figures of the previous census.

The toast was coupled with the names of the Mayors of Bournemouth and Poole, who briefly responded.

Lt.-Col. H. W. WOODALL (Director of the Bournemouth Gas and Water Company) proposed "The Visitors," mentioning the principal guests by name and coupling the toast with the name of Brigadier-General Sir Henry Page Croft, Bart., C.M.G., M.P. for Bournemouth for the past 23 years.

Brigadier-General Sir HENRY PAGE CROFT, in the course of a brief and humorous reply, referred to the speech by Dr. Burgin, which, he said, was full of suggestion and promise. That must be regarded as very satisfactory by the Industry, because, during the two years Dr. Burgin had been a Minister, he had made a great name for himself, and for the Industry to receive congratulations from him must be taken as a compliment. For himself, he had heard with the greatest pleasure that the Gas Industry was producing something which belonged, 100%, to our native land. Finally, Sir Henry expressed his faith in the future of the British nation, adding that, if we go forward with spirit, character, and determination, this old country will come out where she should be—at the top of the world.

Sir FRANCIS GOODENOUGH proposed the toast of Mr. P. G. G. Moon, the Engineer and General Manager of the Bournemouth Gas Company, and also of his Staff, for all they had done in connection with the organization of the Conference. Only those at Headquarters knew what an annual conference means to the Manager of the undertaking in whose district it is held. It meant a great deal of trouble and time, and from the start Mr. Moon and his Staff had worked in the closest possible manner with the Staff of the Association to ensure that everything should go smoothly.

Mr. P. G. G. MOON, whom the company insisted should respond, said this toast had really been quite unexpected, but it was nevertheless very pleasing. There is, he said, one characteristic of the moon—that it reflects the light of other bodies—[laughter]—and therefore everything that had been said concerning him applied with greater force to his Staff. His own work in connection with the Conference was the reflection of the enthusiastic assistance he had received from them throughout the whole of the preparations.

B.C.G.A. Report and Accounts

[The Annual Report of the General Committee was published in the "JOURNAL" last week.]

Presenting the report and accounts, Sir FRANCIS GOODENOUGH said:

The outstanding item in the accounts is the deficit of nearly £2000 which was due to our receiving from the general pool, to which all the undertakings subscribe, rather less last year than we expected, owing to the increased needs of the Institution of Gas Engineers for education and research, and the National Gas Council for their work. We could have carried over into the current year some of the expenditure charged in the present accounts, but we felt it was wiser to show the deficit and let the Industry realize that you cannot make bricks without straw, and that we did not have enough straw for the bricks we set about making for the Industry during the year. All the money has been spent for the benefit of the Industry, and what we ask is that the Industry should give us more substantial support in every direction they possibly can. The drain on the amount available for advertising is always tending to increase. Then there are the needs of the Institution and the needs of the National Gas Council, to say nothing of the calls for expenditure on that very desirable and valuable side of our work, the lecture campaign, which has done an extraordinary amount of good during the past year. Then we have had to spend a considerable amount of money in keeping our end up at the Building Centre in London and taking our part in the British Industries Fair and the Exhibition of Industrial Art. Now there will be a very important exhibition to consider in two years' time, organized at the Royal Academy, as a winter exhibition in conjunction with the Royal Society of Arts. All these things are constantly clamouring for support from the Industry, and we have reluctantly to diminish the amount available for advertising in order to keep the end of the Industry up in other directions.

We have been told by a critic that we miss opportunities, sometimes, of publicity, but I would say that we do not miss seeing the opportunities; what we do miss is the means for taking advantage of them. We are constantly having opportunities for publicity put up to us which we should be only too glad to take advantage of on behalf of the Industry, but, as I have said before, if you have not got the money you cannot possibly do all that would be of advantage to the Industry. We have no money for a film campaign, and many other things which would be of advantage to us. There are many people outside the Industry who, judging by the publicity they see, think we have a bigger income than we have; and that is fairly good testimony to the skill with which our advertising advisers place our advertisements in the papers.

NEED FOR INCREASED ACTIVITY.

You do not need to be told that there is an increasing need for activity on our part. When the electrical grid is completed there will be increasing activity on the part of our electrical competitors; there is constantly increasing activity on the part of our oil competitors, and now the sum of £60,000 is to be spent in persuading the public that raw coal is better to burn than anything else. Therefore, this is not the time for us to relax. It is the time for us to increase our activities. There is an increasing need for advertising, both national and district; some people sometimes have doubts as to the value of advertising, but I do not think many here will hold that view. Advertising is the voice of business and is an essential factor in the making of profit. To think of it as a regrettable expense, and look forward to the day when it might be eliminated from your accounts, is to misunderstand its function and its power altogether. It is as essential for an industry to learn to advertise as it is for a child to learn to walk. It would be as costly a blunder for a business not to spend money on advertising as it would be for a parent to refuse to spend money on his boy or girl learning to speak, read, and write.

By some business men, advertising is looked upon as an expense mainly connected with putting a proposition or a product before the public, and they hope to "cut it out" as soon as the business has got running. You might as well cut out the petrol supply when you've got the engine running—and you could if you were only going down hill all the time. But to keep going full speed along the level and climb the hills when you come to them, you need an ample and constantly replenished supply of driving force—and as a nation and as an Industry we have plenty of stiff gradients to climb out of the valley of depression and over the hills of competition, and we have need for steady pro-

gress when we get back on to the high road and uplands of prosperity; so we simply cannot afford not to spend enough to give us all the driving force that advertising can provide.

Sound, educative, informative, reliable advertising is needed to-day more than ever for the building up and maintenance of sound business—business, based on efficient service, that will be profitable alike to buyer and seller, and therefore to the nation which together they constitute. And I know of no more profitable way of spending money on advertising than through the Press, daily, weekly, trade, and technical, both national and provincial. I have no fears as to the future of the Gas Industry, any more than I have as to the future of British industry generally. Both are faced with unprecedented competition, but both are in the hands of British traders of the same breed as the merchant adventurers of old; and I am therefore a thoroughgoing optimist as to our future. I am an optimist because I believe that my fellow countrymen, though often slow, even exasperatingly slow, sometimes damnably slow—and don't forget that delay is dear as well as dangerous—have the wisdom, the courage, and the enterprise to move before it is too late, as, to take the most outstanding example, they did in the Great War, where they proved that, while slow starters, they were impossibly hard to stop when they had got going.

I am confident, therefore, that in the difficult times that lie before us—and the soft money-come-easy times are gone for ever—we shall demonstrate again our capacity to secure victory and maintain progress and prosperity. To do this we must all adopt scientific methods of marketing and have them practised by trained men of selected character and ability. Let those of us who need to do so set ourselves to the task of preparing for the fray.

I am speaking of British Commercial Gas Association advertising, which is both district and national advertising, but there is an increasing need for individual advertising by undertakings. Do not think that you have finished your expenditure on publicity when you have sent your cheque to the B.C.G.A., or that you have finished the efforts you ought to make for developing your business. Some undertakings we know are inclined to think that, having subscribed to the B.C.G.A., they can sit back and do no more; but the B.C.G.A. advertising is only the general background for local publicity which enables you to get the full "pull" out of your local publicity; and, on the other hand, it is your local publicity which enables you to get the full advantage out of the B.C.G.A. national publicity. The two things must work together; they are both absolutely essential and they both enormously assist the salesmen in their educational work among the consumers.

The B.C.G.A. Education Scheme.

May I here say another word as to the increased need for sound salesmanship which includes skilled service sincerely planned to ensure the permanent goodwill of the customer? The Association can help you and does help you in that respect by providing a domestic course for salesmen. Some of you have taken advantage of it, but not all. It is, however, ready for you. We have also ready for you a course for the training of fitters. That has been prepared by the same Committee as prepared the Domestic Course, but it is cheaper than the Domestic Course and will be of very real value to you if you will take advantage of it. Then we are also ready to help the Industry by making a survey of all the sales methods throughout the Industry, in order that we can tell you what are the most successful methods of sales promotion now being adopted. It is with all the emphasis I can command that I urge you that now is the time to do everything necessary, to put our house in order to meet the competition which is upon us and which is growing every day.

NOTES ON PLANT AND PROCESSES

New Davis Gas Fire Catalogue.

A glance through some of the illustrations contained in the new Davis gas fire catalogue for the coming season leaves one wondering whether much further progress can conceivably be made in the artistic treatment of the gas fire to harmonize with every variety of decoration scheme.

Retaining the recently adopted "double-size" page, the catalogue immediately attracts attention by reason of the delightfully produced colour photograph of a "Panella" fire in modern setting on the front cover, while turning over the subsequent profusely illustrated pages convinces one how perfectly suited are the Davis Gas Stove Company's fires equally to the ultra-modern fireplace as to the conversion of the existing grate from coal to gas.

The first section is devoted to full particulars and a variety of treatments of the "Antony" and "Panella" fires. The "Panella," in particular, as a number of illustrations show, opens up new possibilities for pleasing and effective treatment, while it can be used with equal success in an unusual "modern" setting or with a mantelpiece of period design. Fixed flush with the wall it takes up no unnecessary space, needs no hearth, and can be set at any desired height. The "Panella" F. type fire is a development of the original fire produced three years ago, but is somewhat bolder in design, having an inner and an outer frame.

The latest development of the flush built-in type of gas fire, designed for treatment by the architect, is the "Sunsquare." In this model the fire front is recessed 4 in. behind the face of the wall or surround, the stainless steel or chromium-plated bevelling giving a mirror-like effect that aids the treatment and enhances the charm of the fire when alight by a cheerful reflection of the glowing radiants. Illustrations show several attractive settings of this new fire.

Special care is devoted to the finish of Davis fires, and the varieties offered this season include a new range of colour effects in keeping with the modern trend in decoration. No fewer than nineteen illustrations of fires in actual colours are included in the centre spread, showing the "Armoured," "Clouded," "Plain," and "Faience" finishes.

The catalogue also gives particulars and illustrations of many other Davis fires and accessories, including wall plaques, "Marblate" suites, and the "Nautilus" flue, while a final section is devoted to radiators for both domestic and garage requirements.

Ewart's Water-Heating Appliances.

An illustrated leaflet recently published by Messrs. Ewart & Son, Ltd., of Euston Road, N.W. 1, deals in an interesting manner with the firm's new "Vivo" instantaneous multi-point gas water heater, which is stated to be entirely automatic in operation.

Diagrams clearly show how the heater, fixed directly over the draining-board in the scullery, saves floor space as well as plumbing costs, while it is claimed that the appliance provides an instant and unlimited service of hot water at any temperature and at any time of the day or night. It is only necessary to turn on the hot water tap after once lighting the pilot gas jet to obtain any quantity of hot water required.

The "Vivo" is constructed of stout copper, the interior being a solid drawn copper coil, easily accessible for cleaning and renewal. Other details include an improved form of swing-out burner, cast-iron wall bracket, and detachable copper base tray for easy cleaning. The heater is supplied in finishes of polished copper, copper bronze, and chromium-plated.

If there is already an independent or back boiler, the "Vivo" may be fitted to provide a very satisfactory summer-time service. In most cases it is a simple matter to fix the "Vivo" to the existing piping, and a diagram on the leaflet shows the plumbing work usually required. The heater is connected to the existing cold water supply from the cistern and to the existing hot water service from the independent boiler. An alternative hot water service is thus available at all times of the year.

Other publicity matter recently issued by Messrs. Ewart & Son, Ltd., includes details of their "Storit" and "Allhot" storage heaters. The former has been specially designed to utilize corner space in small sculleries, bathrooms, kitchens, &c., and has a capacity of ten gallons. The "Allhot" has a storage capacity of about 2¼ gallons, and is made throughout of copper, the interior being coated with pure tin and the exterior finished in polished copper, copper bronze, or chromium-plated. The heater is suitable for providing hot water for washing-up purposes or for the wash-hand basin, at about 145° F. in about 16 minutes after lighting up from cold (say, 55° F.), and a quick recovery is claimed after hot water has been drawn off.

CHATEAU LAURIER HOTEL.

Headquarters of the Canadian Gas Association Convention at Ottawa.

ANNUAL CONVENTION OF THE CANADIAN GAS ASSOCIATION

OTTAWA, SEPT. 18-19, 1933

By THE EDITOR

There was a large attendance at the opening session of the 26th Annual Convention of the Association, which had been postponed from the period of the year in which it is usually held so as to allow of the British Gas Engineers attending. The programme of papers was a heavy one, and the overseas visitors took their fair share in the lively discussions which arose. At the opening of the proceedings, Mr. George W. Allen, Secretary-Treasurer of the Association, welcomed the delegates, and he was followed in the same strain by the Mayor of Ottawa, who remarked that what the world needs to-day is greater tolerance and greater friendship. " A conference of this kind enables us to put ourselves in the other man's shoes," which is of inestimable value. There were on the platform supporting President Hugh M'Nair, Mr. Arthur Hewitt, Mr. Tarratt, Col. Carr, M. Baril, and Mr. Alexander.

We deal separately with the portions of greatest importance to ourselves of the addresses and papers delivered. In the meantime, it may be mentioned that the Mayor's welcome was followed by Addresses from Mr. Tarratt, M. Baril, Mr. Escher, and Mr. Hewitt. Mr. Escher gave details of the formation of the International Gas Union in 1931. The members are the leading gas organizations in each country, and the principal aim is to assist the development of the Gas Industry. For this reason, he pointed out, the Union will help to create fraternal relations between its members. The next International Gas Conference will be held in Zurich in September, 1934.

No Gas Lighting Consumers.

Mr. M'Nair then delivered his Presidential Address. It transpired that there is not one gas lighting consumer in Winnipeg, and, of course, no gas street lighting. Mr. M'Nair expressed the opinion that there is no need for insane competition between gas and electricity, for " there are well-defined fields in which each is superior, and if we realize that, and act upon it, we shall be doing the best possible for our customers."

In view of the Dominion's limitless water resources, the Gas Industry of Canada can very fairly feel encouraged by a drop of not more than 1½% in output during the past year.

Major Alexander Forward telegraphed his deep regret that pressure of business prevented his attendance. He was, however, glad that the American Gas Association was represented by President Hewitt.

Explosions Below Ground.

The first paper read was by Mr. D. O. Wing, Assistant Superintendent, Mains and Services Department, Montreal, in which the author dealt with explosions and leaks due to manufactured gas, and with similar occurrences due to other causes. The conclusions of his Company from information from various sources quoted in the paper are: (1) That the ordinary minor leaks in the gas main system do not penetrate sewers over 6 ft. deep. (2) That a major break in a gas main may allow a small amount of gas to penetrate a deep sewer, but that it is unlikely that manufactured gas in sufficient quantities to cause an explosion would reach the sewer. (3) That manufactured gas may leak from a main into an adjoining conduit, and travel along the conduit to the manholes, but that this gas always vents itself into the open air before anything but a minor explosion (such as blowing off a cover of a manhole) could occur. (4) That explosions in electric light and power manholes in most cases are from switch overloads, transformers, and electric short circuits, but that city gas does get into electric manholes and ducts and cause some few explosions. (5) That when a serious explosion in a sewer takes place, it is generally shown that it is due to a leakage into the sewer of a large quantity of gasoline or other inflammable liquid. (6) That no workmen should be allowed to enter a manhole with an open light. (7) That the laws prohibiting dumping of flammable liquids into sewers should be rigidly enforced.

Among the visitors who took part in the discussion was Mr. Hollings.

Gas Heated Buildings.

Mr. John Keillor, Gas Engineer, B.C. Electric Railway Company, Vancouver, described his ten years' progress with gas-heated buildings. In this period sales of gas for heating in Vancouver have increased more rapidly than the sales for domestic and industrial purposes, and the results leave no doubt in the author's mind to which of the branches of the business one must look in future for the largest outlet for gas sales. But this, of course, applies to places circumstanced like Vancouver, where heat in some degree or other is required during at least seven months in the year. Formerly, Mr. Keillor sold " gas " for heating. Now he sells automatic heat—temperature-controlled air-conditioned heat. He used to sell gas furnaces for cash; now he offers up to 50,000 c.ft. of gas for the old furnace, and gives home owners five years in which to pay for new furnaces. The author urged that: " The gas industry needs a new code. A code that would require many companies to scrap inefficient manufacturing plants and build new ones. A code that required them to revise rates to enable them to supply the public with gaseous fuel for heating. If this was done I believe there would soon be a revival of activity in the gas industry, including gas plant and appliance manufacturers without parallel in its history."

The discussion on Mr. Keillor's paper was contributed to by Mr. George Helps, Col. Carr, and Mr. A. H. Lymn.

At this point in the proceedings the delegates and visitors attending the conference assembled on the Chateau Terrace, where an official photograph was taken, and there was then an adjournment for luncheon, after which the reading and discussion of papers was proceeded with.

Annual Dinner.

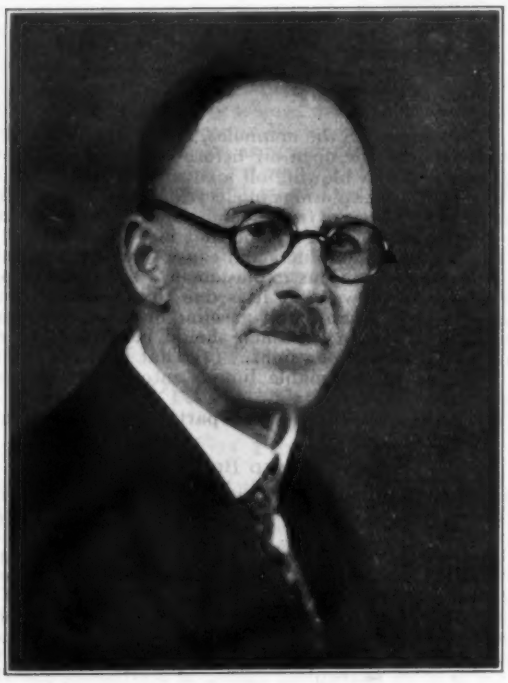
In the afternoon, the reading and discussion of papers was resumed, and in the evening about 250 sat down to the Annual Dinner in the Chateau Laurier, with Mr. M'Nair in the chair. The function was notable in many respects—chiefly because of the presence of the Prime Minister of the Dominion, the Right. Hon. Mr. R. B. Bennett, who was the guest of honour. Another feature, of course, was the unusually large attendance, while the occasion was further marked by two presentations. The musical entertainment was exceptionally good, being largely made up of numbers

provided by the Gatineau Troubadours. Dancing followed the dinner entertainment.

The President proposed the toast of "Canada," which was responded to by Mr. Bennett, who said that Canada was facing her problems with a calm confidence born of a realization of the resources and possibilities of the country and of the ideals of service that actuated the pioneers of the Dominion. He was particularly happy in his expressions of confidence that Canada, having come through a world depression without any major crisis such as had marked most of the countries of the world, would continue to go forward to a great future. In these days of trade restriction and artificial barriers it was always pleasing to remember, Mr. Bennett said, that there was no tariff on brains and ideas. He welcomed the visitors from foreign lands and declared that it was a sure indication that Canada had made some contribution to the progress of mankind when those from foreign countries so readily accepted an invitation to come to the country.

Two Presentations.

The toast of "The Institution of Gas Engineers" was submitted by Dr. Conner, of Cleveland, and responded to by Mr. Tarratt, who said the visitors felt they would not like to go out of Canada without offering some tangible expression of their gratitude to the President and members of the Canadian Gas Association for the way in which they had received them. After consideration, they had decided upon a small piece of plate, which Presidents could hand down to their successors, and regard as a token of esteem. It bore the following inscription, and the coat of arms of the Institution:



GEORGE W. ALLEN.

Mr. Allen, Secretary-Treasurer of the Canadian Gas Association, is Editor and Advertising Manager of the *Intercolonial Gas Journal of Canada*. He has been directly, and indirectly, connected with advertising since 1898. He became associated with public utilities during his five years with the Consumers' Gas Company of Toronto. He was a member of the Board of Educational Control, National Commercial Gas Association, New York, and is a Director of the Testing Laboratory Approval Division of the Canadian Gas Association.

Presented, as a token of affection,
to
President Hugh M'Nair
and the Members of the
Canadian Gas Association
by President Frank P. Tarratt and the Members of
The Institution of Gas Engineers
attending the 26th Canadian Gas Convention at Ottawa
on 18th and 19th September, 1933,
during the Visit of the Institution to
Canada and the United States of America.

Mr. M'Nair having cordially acknowledged the gift, Mr. Bennett said he regarded it as a great honour to present to Mr. L. B. Temple, Service Maintenance Superintendent and Chief of the Emergency Staff at Montreal, a certificate and the Canadian Gas Associations Meritorious Service Gold Medal, in recognition of the saving of human life through the resuscitation of 45 victims of gas asphyxiation by the Prone Pressure method, in Montreal, during the year 1932.

On Tuesday morning, the business of the Canadian Gas Association was concluded, with the presentation of further papers. Beyond those already mentioned, the papers included the following:

"Reforming Oil Refinery and Natural Gases," by J. A. Perry, United Gas Improvement Company, Philadelphia.

"Liquid Purification with Otherwise Waste Ammonia," by John D. Price, Superintendent, Montreal Coke and Manufacturing Company.

"Planning and Executing an Industrial Fuel Department," by O. L. Maddux, Industrial Gas Engineer, United Gas and Fuel Company, of Hamilton, Ltd.

"Investigations Conducted by the Fuel Research Laboratories of the Department of Mines, Ottawa, with a view to Assisting the Gas and Coke Industry," by B. F. Haanel and R. A. Strong, Ottawa.

"Research and Refractory Materials," by A. T. Green, F.I.C., G.Inst.P., Assistant Director of Research, the British Refractories Research Association, Stoke-on-Trent, England.

Planning an Industrial Sales Programme.

In the course of his paper Mr. Maddux said:

A matter of major import with the utility executive in planning an industrial expansion would be a general investigation of the particular types of industrial units that are to be had as well as the ratio of industrial activities to general commercial activities in his own field.

It is necessary that we shall make a thorough analysis of the market.

Such an analysis of our market would depend first upon making a detailed survey of every manufacturing plant, large and small, within the area we serve. In making this survey a competent industrial engineer should be available, one who is thoroughly grounded in the application of gas to various and sundry operations. One who has a vision of a gas furnace to do the jobs that some other fuel may be now doing, an analyst of the component structure of production costs who can, without disrupting the general help that is being given him by the manufacturer, secure such detailed information as will be necessary properly to summarize and classify the results of this survey which he is making.

The next step in the completion of the survey which, however, can be carried on during the investigation period, is the proper classification of the information so received. At this point a great deal of care is necessary that the work done before shall not be wasted. The classification of this information should not be left to a clerk, but should be done by competent engineers who, from the information given, can thoroughly analyze and segregate the loads which will give to the utility the greatest possible return for the commodity sold. These should be accurately graded down, and it will be found that a great many of these items will go into classifications which at the present time cannot be considered as a potential field for the sale of gas, but at some future time may enter into the picture of industrial gas sales.

The segregation of this acceptable business should be made from a dual standpoint. First, according to industry. If the type of production and work to be done is in the field of ceramics, it would certainly be wise to have an engineer thoroughly experienced in ceramics to conduct the application of gas in these various operations. If the industry should predominate toward metal trades, it would then certainly be advisable to have a man grounded and experienced in heat treating, heating, and other various applications of the art of metal working. Secondly, a segregation should be made according to the particular application in the industry involved, so that from this an estimate can be made of the quantities of gaseous fuel required, the available return that might be expected from a general acceptance of gas in these operations, and the necessary price at which gas would have to be sold in order to demand its share of this business.

This information should be classified downward from the top available price in certain small steps or groups cumulative through each group so that it can be determined just how much business is available should the rate be dropped to these predetermined points for the sale of gas. It will be found in making this survey that there will be quite a quantity of business available at current rates; and it might be the best policy of the management to work the

available market before an attempt is made to step into other markets.

The industrial gas salesman has to be a versatile sort of fellow. I can remember distinctly not long ago spending one and a half hours with a candy manufacturer debating with him whether he should put in a high-pressure steam cooker for the primary cooking in manufacturing candy. It was a matter that involved the expenditure of some five thousand dollars, and it was necessary to show him that on the quantity of business that he was doing it would be impossible for him to get sufficient return to justify such an expenditure. He would have used a gas steam boiler in this application, but would not have used any additional gas. I showed him that by installing three additional gas furnaces he could do the same work, without increasing his labour except for one helper whom he used part time at any rate, and would have a plant capacity slightly larger than the one that he had contemplated. The customer was satisfied.

From his office I walked into a bakery, discussing the economics of using gas in baking bread, cakes, pies, &c. During the afternoon I called on a manufacturer of heavy plate, discussing with him important factors involved in the application of gas in heating enormous billets up to a temperature in which they could be rolled into plates from $\frac{3}{16}$ to $1\frac{1}{2}$ in. thick.

I cite this just to show that it is necessary to secure for the sale of gas, men who are thoroughly grounded in the application of gas and who have the desire to broaden their scope of knowledge of the various applications of gas that could be made in their own individual locality.

The speakers on Mr. Maddux's paper included Col. Carr and Mr. W. Dieterichs; on Messrs. Haanel and Strong's paper, Col. Carr; on Mr. Price's paper, Mr. R. W. Hunter; and on Mr. Green's paper, Mr. Frank West.

The New President.

The final item was the introduction of the President-Elect, Mr. D. G. Munroe, of Montreal. The outgoing President handed over to Mr. Munroe for the coming year the salver presented on the previous evening by the British Gas Engineers. Mr. M'Nair, in bidding official farewell to the members of the British and French delegations, said he did not think he had ever attended a gas meeting at which he had enjoyed himself so much. The Institution of Gas Engineers and the French delegates had this year conferred an honour upon the Canadian Gas Association with regard to which the members could not find words to express their feelings. Mr. Munroe then took the chair, and Mr. Tarratt extended congratulations to the new President. He remarked that the Outgoing President, Mr. M'Nair, had made an admirable Chairman, and had been well supported by the whole of the members.

An Appreciated Act.

In the afternoon there was a drive through the city, during which the visitors were able to convince themselves that Ottawa is a worthy capital of a great Dominion. Parliament Hill, with its splendid Gothic pile of buildings, and the views from the top of the Peace Tower, are sights long to be remembered. In this tower hangs a famous carillon of 53 bells; and here, also, is the Memorial Chamber (somewhat on the lines of the impressive one in Edinburgh Castle), which is the nation's tribute to its heroic dead. There is an Altar of Remembrance, within which is to be preserved a book containing the names of all Canadian men and women who gave their lives for their country during the Great War. A very much appreciated event, but one not mentioned in the official Ottawa programme, was the action of Mr. Tarratt in placing a beautiful wreath, on behalf of the Institution of Gas Engineers, in this Memorial Chapel. The wreath bore a suitable inscription.

Later in the afternoon their Excellencies Lord and Lady Bessborough entertained at tea at Government House the ladies and gentlemen attending the convention; and towards midnight the visiting delegates entrained for Toronto, which was reached at 8 o'clock on Wednesday morning.

New Type of Producer Gas Plant

Gas Obtained from Refuse

The Cleansing and Transport Committee of the City of Burnley have been keenly interested during the past few years in the various methods of refuse disposal, in anticipation of the need at Burnley for a new disposal plant. Following the highly successful operation of a small experimental gas producer installed for this purpose by Messrs. Whitfield Gas Producers, Ltd., of 82, Victoria Street, S.W. 1, the Corporation decided to allow the installation of a larger plant of the same type; and, on Thursday last, we had the opportunity of inspecting this producer plant at work, thanks to the courtesy of the manufacturers.

The design should prove of much interest to gas engineers, as will be gathered from its efficiency in treating refuse.

Description of Producer.

The troubles inherent in gas producers which have previously rendered them unsuitable for dealing with domestic refuse which is so variable in size, character, and density, may be traced to one factor—*i.e.*, inability to distribute the air uniformly through the combustion zone. This results in the air for combustion taking the line of least resistance through the fuel bed which obviously cannot be arranged to offer equal resistance at all points. Excessive combustion therefore develops at the point of least resistance inducing a further increase in the volume of air, thus rapidly forming a " chimney " through the fuel bed, localizing combustion and the formation of clinker in the body of the fuel which is so difficult to remove.

Other disadvantages created were:

(*a*) The zone of high temperature rises higher in the producer.

(*b*) Air escaping through the zone results in burning of some part, or all, of the producer gas as formed, causing high CO_2 and low CO contents.

(*c*) The producer gas formed is hot, and cooling results in excessive thermal losses.

(*d*) More tar is entrained in the gas leaving the producer at a high temperature which gives rise to tar troubles.

Improvements in producer practice have from time to time been designed to level the fuel bed and stir up the fuel to break down " chimney " formation.

The Whitfield gas producer, however, embodies a system wherein the air supplied to the producer is so uniformly restricted over the whole grate area that no matter how variable the resistance in the fuel bed may be there is a greater and uniform resistance to the air in passing through the grate prior to coming in contact with any part of the fuel.

The grate is divided into small sections, and air is distributed over the entire grate so that each section has an equally restricted allocation which cannot be exceeded, no matter what localized conditions may prevail in the fuel bed above. The manufacturers therefore claim that they have achieved the ideal condition—viz., the maintenance of a perfectly uniform distribution of air over the whole grate, independent of conditions in the fuel bed.

In detail, the grate is composed of a number of small closed compartments in each of which there is a restricted orifice on the underside for the admission of air which passes through these closed compartments and is then distributed into the fuel through the usual firebar spaces. The size of the orifices is designed to give correct results, having regard to the nature of the fuel and any other specified conditions.

If the pressure in the producer is varied the orifices will pass more or less air, but all in proportion so that the increase or decrease is uniform over the grate area.

The effects of equal air distribution on the working of the producer are claimed by the makers to be as follows:

(*a*) No excess air can find its way above the normal combustion zone therefore restricting combustion to the layer immediately above the grate where the clinker forms and from where it is most easily removable.

(*b*) A reduced depth of fuel bed can be used, and thus less suction or pressure is required.

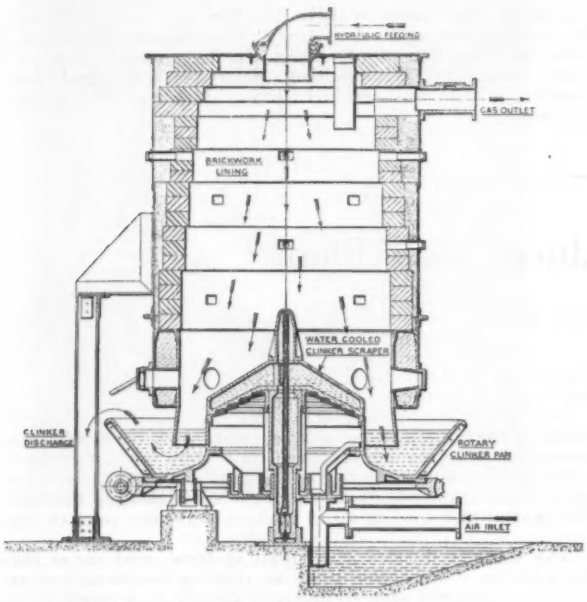
(*c*) Confinement of the combustion bed to the proper level immediately above the grate results in the upper portions being much cooler, giving a lower gas temperature which in turn retains more tar in the

producer which is condensed in the new fuel on top of the bed.

(*d*) Absence of excess air in the higher parts of the fuel bed prevents whole or partial burning of the gas produced which has therefore a higher calorific value due to higher CO and lower CO_2 contents.

The grate is in the form of a flat cone mounted in the clinker pan which holds the water seal. The body of the circular generator terminates below the water level in the pan and is supported from outside stanchions. The body is water jacketted to a height immediately above the combustion zone. The hydraulic ram charging arrangements are on the top of the generator body, the gas outlet being at the side immediately below the ram feed. The pan and grate are revolved slowly through a worm reduction gear engaging a large worm wheel attached to the underside of the pan, the speed being variable between one revolution per hour and one revolution in four hours. The air is passed through the grate and through the system by means of a fan and is saturated with steam which can be produced from the water jacket but which in the experiment at Burnley is supplied from the existing destructor boilers, being readily available. The pressure in the generator is automatically controlled at approximately atmospheric pressure.

By means of arms immediately above the grate the clinker is scraped off to the sides as the grate revolves and passes down into the pan. A plough fixed to a supporting stanchion and carried down into the pan evacuates the clinker as the pan revolves.



Section of 8-Ft. Diameter Whitfield Gas Producer.

Test Results.

The generator, which has an internal diameter of 8 ft. with hydraulic ram feed, was erected in February this year, and it was operated by Messrs. Whitfield to enable them to make any mechanical adjustments necessary and was finally handed over to the Corporation to carry out any tests they thought fit.

It was decided to conduct a continuous test on the plant for five days, to be followed by intermittent running. The plant functioned satisfactorily in every way, and the quality of the gas produced was uniform during both continuous and intermittent working. In starting up during the period of intermittent working, gas was produced of uniform volume and calorific value in about twenty minutes to half an hour.

Mr. Arthur Race, the Burnley Borough Engineer and Surveyor, in a report to the Cleansing and Transport Committee, gives details of these tests, carried out in June last. He states that gasification by this process indicates that 1 H.P. may be obtained from 3 to 3½ lbs. of refuse, which would appear to be at least two to three times more efficient than the modern refuse destructor plant generating steam.

At Burnley the Corporation's electricity generating station is adjacent to the destructor station, and consideration is being given to the generation of electrical energy *via* the medium of gas engines subject to the necessary sanctions of the Electricity Commissioners and the Ministry of Health being obtained.

With a view to defining the economic value of the Whitfield process the following approximate estimate of capital and working costs and revenue derivable are given from the data which have been collected at Burnley. The annual weight of screened refuse to be dealt with by Whitfield plant would be 11,000 tons.

If worked 24 hours per day and 6 days per week, 36 tons of screened refuse would be dealt with each working day, and on a feed basis of 10 cwt. per hour to each generator, 3 generators would be required *plus* one standby.

Mr. Race estimates the total capital cost of the complete installation, including screening plant and incinerator, &c., at £34,000, and the operating costs, including maintenance, interest charges, &c., at £6277. The amount of gas produced would be 55,000 c.ft. per ton, or 605,000,000 c.ft. per year.

The amount of gas utilized for incineration of offal refuse, &c., he takes as 2,000,000 c.ft. per year.

Net surplus gas available = 603,000,000 c.ft. per year.
Average calorific value = 125 B.Th.U.
H.P. available on basis of 10,000 B.Th.U. per H.P. = 7,537,500.
Units of electricity generated = (with a generator efficiency of 90%) = about 5,000,000 per annum.

Assuming that 0·15d. per unit is realized for the gas supplied to the electricity undertaking, the annual revenue would amount to £3125, and therefore the cost of refuse disposal would be £3152 per annum or 2s. 10¼d. per ton.

In these estimates no allowance has been made for possible revenue derivable from the clinker or separated dust, metals, &c.

Municipal Engineers Inspect Plant.

On Thursday last, as we have said, we had the opportunity of inspecting the plant at Burnley, in company with about a score of municipal engineers and others interested, at the kind invitation of Messrs. Whitfield Gas Producers, Ltd. The firm were represented on the visit by Mr. C. W. Catt (Chairman) and Mr. J. N. Williams, F.C.S., A.M.I.Mech.E. (Director), who explained the points of interest in connection with the producer plant.

The party were welcomed at Burnley by the Mayor (Alderman R. Place, J.P.) and other officers of the County Borough, including Mr. Arthur Race, the Engineer and Surveyor, and the plant was seen at work in conjunction with the auxiliary apparatus consisting of a cooling tower, centrifugal tar extractor, and scrubbing plant.

After the inspection, the party were conveyed to the Towneley Hall, Burnley, where they were entertained at tea at the invitation of the Council. The Mayor presided and extended a welcome to those present, in the course of which he remarked that Burnley was a very progressive Borough, and he hoped the plant they had seen that day had proved of interest and that their visit might be helpful to them.

In proposing a hearty vote of thanks to the Mayor and his colleagues, Mr. Catt said they were very grateful for the opportunity of seeing the producer plant at work, and he hoped that when all the experimental work was finished it would prove of value to the Borough.

New Methods of Repair Work.

The Bulletin de l'Association des Gaziers Belges, 1933, 55, 312-317 and 318-323 (July-August) contains two papers dealing with the repair of plant filled with gas.

The first, reproduced from the June issue of La Technique de la Soudure et du Découpage (published by S. A. l'Oxyhydrique Internationale, Brussels) deals with acetylene welding and cutting applied—*e.g.*, for the purpose of fitting a sleeve or cutting-out a length for the insertion of a new valve—to mains in which gas under pressure is flowing. Illustrations and brief descriptions of the methods employed are given, and stress is laid on the need for strict and skilled supervision in the case of work of this nature in view of the hazards involved.

The second deals with the repair of holes in holders by the Schoop metal-spraying process which has been successfully employed for several years, holders in nine Danish works having been repaired by this means by the Société Danoise de Métallisation de Copenhague. The holes, revealed by sand-blasting, are stopped by a special process prior to the metal-spraying operation.

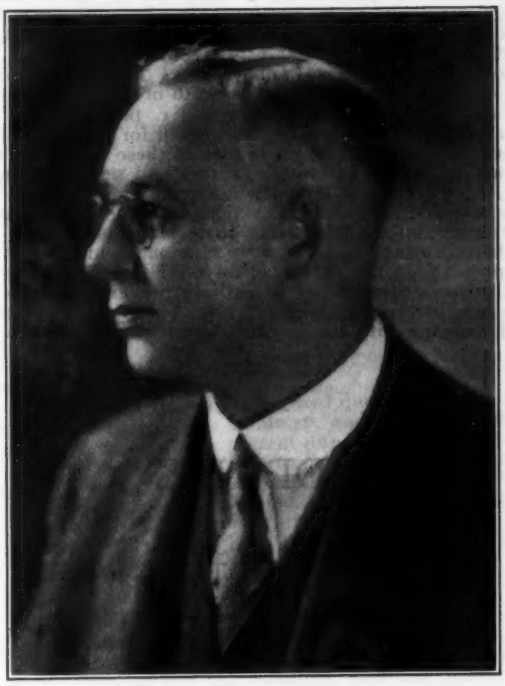
CANADIAN GAS ASSOCIATION

PRESIDENTIAL ADDRESS*

OF

HUGH M'NAIR,

OTTAWA, SEPT. 18.



HUGH M'NAIR.

Mr. M'Nair was born in Hamilton, Scotland, and received early training under his father, who was Engineer and Manager of the Municipal Gas-Works of Wishaw, Scotland. He afterwards served under the late Mr. John Wilson, who was Manager of the Tradeston Gas-Works of the City of Glasgow He held various appointments in Scotland and Ireland as Manager of gas plants. Mr. M'Nair went to Canada in 1912, was appointed Gas Engineer of Public Utilities Commission of Manitoba in 1913, which position he held for 11 years, when he was appointed Manager of the Gas Utility of the Winnipeg Electric Company, which position he still holds. He is a graduate of Glasgow University.

This 26th Annual Convention of our Association gathers us together under conditions that challenge our courage and efficiency. I know this challenge can and will be met—met successfully.

This is more than a national gathering, it is an international gathering in a very special sense. We are privileged to extend the first fraternal greetings received by them on this side of the water to the delegates from the British and French Associations.

Our friends from the United States are always with us, and we would indeed feel there was something wrong if they were not here. They have come to us this year in a most unusual, but very acceptable manner. Their delegation is headed by their President, Mr. Arthur Hewitt, a Canadian executive and a respected and valued member of our Association. In electing Mr. Hewitt to the high office of President of the American Gas Association, our United States friends honoured themselves, honoured us, and showed excellent judgment in what they did.

For the information of our overseas visitors I may say that the President of the American Gas Association is a native born Englishman operating a Canadian Company, and the President of the Canadian Gas Association is a native born Scotsman.

The past year has a been a difficult one, and although there are many signs of improvement we are not out of the wood yet. The Gas Industry faces trouble and difficulties on every side—some of our own making. We face the reduced consumption due to inactivity in our industries; we face fair competition from well-managed producers of electricity and oil, and we face unfair competition from some state subsidized, publicly owned electrical developments.

Despite all this, we are not downhearted; we are pressing on and we are giving our competitors a good fight. Last year our gas output in Canada was 16,586,905,000 c.ft., a decrease of 1·6% from 1931, as compared with a decrease of 2·5% in 1931 from the output in 1930; 25% of our companies report increased production in 1932. Meters in use total 534,599, and gas mains carrying manufactured gas in Canada total 3745 miles, the latter showing a slight increase for the year.

Up to this point I have been dealing with things that *have* happened. Now I propose devoting a few minutes to things that *should* happen. The Gas Industry must move forward, and we shall have to do the pushing. Are we placing the services we have to sell fairly and squarely before the buying public

Creating Public Interest.

Public utilities in many instances have failed to realize that their business can be increased by salesmanship. The same principles that apply to selling chewing gum, silk stockings, and automobiles also apply to selling gas.

First: Get the interest of the prospect.
Second: Create in him the desire to buy.
Third: Get his name on the dotted line.

How shall we create that interest? By well planned publicity, the general principles of which might well be national in character. A national campaign could be worked out by a committee made up of our various companies' advertising men. Local features could be dovetailed into such a plan. We should not overlook the value of good news stories about the Industry. The main point is that judicious, well planned publicity prepares the way for the salesman. When I say publicity, I include newspaper advertising, radio, direct mail, bill boards, &c., each or all to be used according to local requirements.

As a pre-requisite to efficient publicity we must have knowledge. A number of companies include on their staff industrial engineers whose job it is to search out new uses for gas, places where gas would be more efficient than the medium now in use, and ways and means of giving better service to existing gas installations.

Next, what of the salesman? The uses to which gas can be put are highly technical, and the advantages of gas over its competitors are based very frequently on intricate and precise calculations. What is the use of building up complete proof of the superiority of gas both as to price and efficiency, if we leave the most important part of the work—the actual selling—to incompetent salesmen. Our salesmen are on the firing line. They must be competent, efficient, and well versed in the technology of the Industry. No matter how good we are behind the lines, if the men on the firing line fail, we fail too. Look well to your selling forces.

The Seal of Approval.

Are we offering what the public wants? Gas equipment offered to the public should always be reliable, up-to-date, and dependable. We maintain a laboratory to test such equipment, and if it is satisfactory an official approval seal is given. Have you done your part in letting the public know of this service? Have you emphasized to your customers the protection that seal of approval gives? We now have 196 gas appliances bearing the Association's seal of approval. Have you a list of them? Do you discourage the sale of inferior appliances by insisting on the seal of approval on the appliances that you purchase for sale? Public confidence is hard to get and easy to lose. Our laboratory will help you get it and keep it.

With conditions as bad as they have been there has been new business to get. In Ontario, we saw the Ontario Power Commission offer 50,000 electric water heaters on a flat rate basis, with no charge for the heaters and free installation, while in Winnipeg, Manitoba, we have had the pub-

* Extract.

licly owned hydro-electric system supply electric stoves to apartment blocks free, giving free wiring, rent, electric water heaters at a ridiculously low rate, and even buy the customer's old gas stoves at from ten to fifteen dollars in order to take away our business. In addition to this, look at the rates we are compelled to meet. The 1 kw. electric water heating flat rate is $3.00 per month. This is continuous service 24 hours a day. The domestic cooking rate is 9/10 of one cent, or 9/10 of one halfpenny net per unit, and the lighting rate is ½ c. per unit, less 10% in ten days. Much lower rates prevail for commercial and industrial purposes. Even in face of these ridiculous rates we are installing gas water heaters and gas stoves every day. Some Ontario cities, while sympathetic to the publicly owned hydro-electric system, own their own gas departments and are doing much to develop gas sales.

There is a reason, and a very sane one, which we can all adopt with profit. There is no need for the insane and costly competition which sometimes prevails between producers of electricity, gas, and oil. There are well defined fields varying with the territory served in which each product is superior, and if we could get that fact realized we would save money for ourselves and our customers. It may surprise some of our overseas visitors to learn that in the City of Winnipeg we have not one solitary customer who uses gas for lighting purposes, and in fact no house built within the last twenty years has been piped for gas lighting.

Of course, we are interested in natural gas; 110 municipalities in Canada have natural gas service. The outstanding problems in the Natural Gas Industry are conservation where the supply exceeds the demand, and the finding of new sources of supply where the existing sources are dying out.

Finally, presidents may come and presidents may go, but there is always one man upon whose shoulders falls the important but frequently monotonous, inconspicuous duty of carrying out the routine work of the Association—the Secretary-Treasurer. I publicly say to you that in George Allen you have a loyal official, and for myself I would say that I never worked in a position of responsibility with a more faithful and helpful comrade.

ADDRESS*

BY

FRANK P. TARRATT, M.Inst.C.E.,

President of the Institution of Gas Engineers.

[Extract.]

It was with the greatest pleasure that the Institution of Gas Engineers accepted your invitation to participate in this Convention. I was delighted to find myself asked, as President, to lead the British delegation, and I have looked forward with pleasant anticipation to this day and what is to follow. We have a common interest in our profession. Many of us are engaged in endeavouring to solve similar problems, although under very different conditions. Nevertheless, from our birth as an Industry—more than a century and a quarter ago—we have both remained members of the same family. Most of us have relatives and friends in this great country, and, if it is mentioned at home that we are visiting Canada, we at once receive the most delightful invitations to visit those who have taken up their domicile in your land.

On behalf of my colleagues, I desire to convey to you hearty greetings from all gas engineers in Great Britain and Ireland; to you, Mr. President, I extend our heartiest congratulations on the responsible position you occupy as head of the Canadian Gas Association. Doubtless the distance of Winnipeg from Ottawa has prevented this meeting from being held in your own city. May I draw the attention of those from overseas to one example of your record in connection with the Winnipeg Gas Undertaking. Notwithstanding the intense competition since the Electric Company built their first hydro-power station in 1906, which resulted in a temporary decrease in gas sales, your enterprise and energy was such that in less than two years the loss was made up by new business on the industrial side.

It is interesting to observe that the output of gas in Canada has grown to 17,500 million c.ft. per annum, and it would appear that every endeavour is being made to link up within certain areas the smaller towns throughout the Dominion. Probably advantage will be taken of high-pressure distribution systems, as has been done in certain areas in England.

The training of gas engineers has received the serious attention of the Institution of Gas Engineers for several years. It was always possible for students to enter for the examinations of the City and Guilds of London Institute, but it was only ten years ago that a really comprehensive scheme of Education was formulated, under which certificates are granted, certain of which—subject to the fulfilment of other conditions—admit to membership of the Institution. The increase in the number of candidates has been little short of spectacular, and we are assured that men attracted to the profession will have received a good technical training and be competent to meet the ever-increasing demands of industrial life.

Affiliated to the Institution are the various Senior and Junior Associations, each covering a specified territory. They are a tower of strength in disseminating useful information from both large and small works. Most of our towns are in such close proximity to one another that Engineers are able to meet frequently and discuss important matters of both technical and commercial interest. In addition we are most admirably served by our Technical Press.

In Great Britain the standard of calorific value has been more or less established between 440 and 500 B.Th.U., although one of the London Companies supplies at 560 B.Th.U.

The thermal charge is practically universal with us, and among its beneficial results is the necessity for even more systematized control of manufacture, which has led to a better appreciation of what can be got from coal.

Carbonizing Plant.

During the past few years there has been considerable discussion between the supporters of carbonization in horizontal retorts and those advocating some type of vertical retort, continuous, intermittent, or chamber oven. It is interesting to see that, as a result of the efforts of those responsible for one or other of the systems, the quantity

* Given before the 26th Annual Convention, Canadian Gas Association, Ottawa, Sept. 18, 1933.

Published Results of Various Types of Carbonizing Plant.

Distinguishing Letter.	Type of Plant.	Class of Coal Used.	Calorific Value of Gas B.Th.U.	Therms per Ton (8% Inert Basis).	% Weight Steam on Coal Carb.	Fuel Used Dry Coke per Ton of Coal Carb.	Coke and Breeze Saleable per Ton of Coal Carb.	Weight of Coal Charge per Chamber per Day.	Duration of Charge.	Waste Heat Boiler Steam from and at 212° F. per Lb. Fuel Used.	Inlet Boiler Temp. (Waste Gases).	Outlet Boiler Temp. (Waste Gases).
						Cwt.	Cwt.	Tons.	Hours.		°C.	°C.
A	Intermittent vertical chambers	Durham. U.S.	471·6	85·1	12·9	3·45	11·00	5·6	15	3·66	760·0	250
B	Intermittent vertical chambers	,, ,,	510·4	79·7	7·8	2·83	11·77	6·76	12	2·45	..	..
C	Continuous vertical retorts . .	,, ,,	500·8	80·4	10·0	2·80	12·00	3·3	..	5·00	800·0	220
D	Horizontal retorts	Lancashire / Yorkshire / mixed slacks	529·0	75·9	..	2·00	12·00	1·6	12	2·29	472·9	215
E	Coke ovens . .	Durham. U.S.	573·6	75·6	..	2·54	12·14	21·5	19	..	..	..

of therms secured per ton of coal carbonized has steadily risen.

The above table shows published results from five types of carbonizing plant in general use in Great Britain, and incidentally the varying qualities of gas obtainable. The flexibility of two of these types allows of a much greater range than shown, with a variation in production of gaseous therms and a corresponding reduction in saleable coke.

Complete gasification plants have not made much headway in our country, although plants of the Tully type were installed during the war, when other gas-making plant was unobtainable. Interesting investigations in this direction are being steadily pursued, however, and we await with interest the publication of the results obtained by the North Middlesex Gas Company.

Few reliable tests of earlier plants have been published, and these indicated thermal yields in gas of only 140-160 therms per ton of coal carbonized, which barely reach the thermal yield obtainable from gas coals by the two-stage process.

Later and extended experience shows that caking coals of the type normally carbonized in gas-works can be efficiently and easily handled by plants of modern design, and the advantage of this and the ability to dispense with the provision of special types of coal which has been former experience are obvious. The gas produced is enriched with gas oil in the usual way up to the desired calorific value, and the efficiency of carburetting and the thermal yield obtained from the gas oil are the same as those obtained in normal carburetted water gas practice. A thermal yield in the gas of 180 therms per ton of coal gasified is obtainable, representing an increase of about 20% over the thermal yields from earlier types.

The flexibility of operation and ability to meet the varying peak loads normally experienced in British gas-works practice have been well demonstrated during an extended experience. It has proved a simple matter to change over the operation of the plant—worked to maximum capacity and efficiency—from coal to coke working and *vice versa*.

Benzole extraction from town gas was practically compulsory during the war. Although, to some extent, the practice subsequently fell into disuse, it has been re-established at many large works, where the quality of gas from the particular process of manufacture allows sufficient margin. The benzole extraction method most usually practised is that of washing with gas oil, but this process brings in its train the inconvenience of gum deposits from the gas. The usual quantity of crude benzole recovered is from 2·5 to 3·0 galls. per ton of coal carbonized, which reduces the calorific value of the gas by about 25-30 B.Th.U. There results an appreciable reduction in the sulphur compounds.

A large benzole plant has been recently installed at the Gas Light and Coke Company's works at Beckton. Activated carbon alone is used, and the plant is capable of recovering about 16,000 galls. per day.

The extraction of naphthalene is now general, resulting in considerable savings on the distribution side.

The extending use of "dry" gas should materially reduce the corrosion of service pipes and damage to meters.

Methods of Charge.

In the Report of the 1923 Committee of the American Gas Association on Rate Structure it was stated "it is of vital importance that progress be made in the development of uses for gas other than for lighting and cooking. This is equivalent to saying that, if scientific rates were desirable 25 years ago, they are imperative now. Unless we offer the customer who makes long-hour use of his demand a rate much closer to the actual cost of serving him we cannot begin to compete with other fuels. This means that we will continue to shut ourselves out of the 'industrial' field with its almost limitless possibilities."

This point of view was confirmed by Mr. Arthur Hewitt when addressing the Institution of Gas Engineers in 1926. He said he had been compelled seriously to review the rates charged for gas in the variety of trades for which gas could be used.

This is one of the most-discussed questions of the present day in the British Gas Industry, and until Parliamentary legislation accords with present-day requirements, it is difficult for gas undertakings to offer to consumers the most advantageous rates. Fortunately a Special Committee has represented to the Government that amending legislation is necessary. My own Company, under its special powers, endeavours to place before its consumers attractive tariff rates.

Gasholder Practice.

General gasholder practice in recent years has favoured the spiral type in self-contained steel tanks, but quite a number of waterless holders of the M.A.N. type have been erected throughout the country, and one holder of the Klönne type has been erected in the City of York. Probably one reason why waterless holders have not made more rapid progress is that the savings to be effected are negligible if the capacity is below about 2 million c.ft.

A valuable report was recently issued by the Institution of Gas Engineers on the Inspection of Gasholders. It emphasized the necessity for adequate periodical inspection and the checking of levels of tanks and lifts to detect and remedy any corrosion of sheets, sections, and bolts, and stated that a systematic record should be kept of the date, nature, and result of such inspection and of the work carried out. Wherever possible, such work was to be done by the staff of the undertaking. The report contained useful memoranda on the subject of the insurance of gasholders.

Several improved types of apparatus for use in cases of carbon monoxide poisoning have been recently marketed, and a mixture of O_2 and CO_2 is recommended as having been used with beneficial results.

Several special varieties of dry coke thoroughly screened and graded have been put on the market in recent years, including "Dryco" (Liverpool), "Coalite" (South Metropolitan Gas Company), and "Cleanglow" (Gas Light and Coke Company). These fuels are undoubtedly of benefit to the domestic consumer.

The use of waste-heat boilers is becoming standard practice on all vertical retort installations, and considerable numbers have been fixed in recent years on horizontal plants with material advantage. A uniform working of the settings is secured in addition to the advantage secured from the use of the available "waste" steam.

There has been a marked tendency in recent years for the large undertakings to amalgamate with or absorb concerns in the vicinity, and there is no doubt this will continue, as the large undertaking is better able to consolidate its position, and the process tends towards efficiency and economy. My Company has recently taken over four other Companies, and now, with the City of Newcastle as a centre, the district extends ten miles in each direction.

It was truly said by one of our great statesmen when visiting Canada some few years ago, that your country and our country "are all united by a wonderful network of ties, official and unofficial, by many proud memories, by common standards of life, by similar hopes and aspirations." It behoves us to see that the kindliness and brotherly feelings which are engendered by such meetings as these are never effaced, so that, encouraged by sympathy and a broader outlook, we may, in spite of our separation by sea, achieve that degree of understanding which will enable us mutually to develop and solve in co-operation the problems with which we, in fact the whole world, are faced.

Research and Refractory Materials*

By A. T. Green, F.I.C., F.Inst.P., Assistant Director of Research, British Refractories Research Association.

An important feature of the trend of carbonization during the past twenty years appears to have been the increasing temperature of working, the object of which is reported as the realization of larger throughputs and greater speeds of working. This feature, together with the necessity for flexibility of working puts a great tax on an installation, and, in fact, necessitates a plant capable of withstanding comparatively drastic conditions.

For all carbonizing operations, the material must be refractory to heat at the temperatures of working, and to other influences which will be defined later. It must maintain itself as a structural entity during working and give a life long enough to ensure the complete economy of the process. It should possess, as far as possible, thermal properties capable of giving increased efficiency to the process of carbonization. This definition of the required properties is fundamental. It contains the *sine qua non* of the position.

With the increasing flue temperatures and outputs many carbonizing units have been converted to the use of silica products. Investigations on these materials have proved of great value to the manufacturer in teaching him what products to make, and to the user in teaching him the correct appreciation of their properties. Most of this work has been consummated during the past ten years.

One of the properties which has given to the silica product its important place in the carbonizing industries is its high structural stability at very high temperatures; in other words, its high refractoriness-under-load value. The refractoriness test gives the first indication of the worth of a refractory material, for it implies a measurement of the resistance to softening under the effects of excessive heat treatments, but it gives no information on the conjoint influences of pressure and temperatures, a state of affairs more often encountered in industrial usage than the effect of temperature *per se*. Comparing the "under-load" tests on an average brick made from fireclay and an average silica brick it is clear that, whereas the firebrick commences to show appreciable contraction at comparatively low temperatures—*i.e.*, 1250° to 1350° C.—the silica brick is structurally stable at temperatures of 1550° C. and over.

There can be no doubt that the application of the refractoriness-under-load test has resulted in considerable improvements in the texture of the commoner refractories, and this has reacted very favourably on their durability in practice. However, it should be emphasized that there are many aspects of the mechanical properties of refractory materials at high temperatures which have, up to the present, received little or no attention. In fact, a considerable field requires exploration. In the main, stability at high temperatures has been investigated from the viewpoint of one test; its broader and more fundamental significance calls for considerable study.

Corrosion of Refractories.

An analysis of the corrosion of refractories shows that, in the main, two factors are conspicuously concerned. The first depends on the surface reactions which occur between the corrosive agent—slag or dust—and the material of the refractory. The second is concerned with the penetration of the refractory by such agents and the physical disintegration which follows such penetration; the former invariably accompanying the latter.

A tendency towards spalling will increase the amount of corrosion, as the cracks formed during spalling will serve as the *loci* for the penetration of the corrodant.

The matrix of a silica brick may possess appreciable fluidity at the high temperature of its use, and it tends to diffuse to cooler positions. This phenomenon helps considerably the passage of corroding agents such as iron compounds. How far the fluidity of the vitrified portion of a firebrick helps in the passage of corrodants is a moot point, but the possibility cannot be lost sight of in the study of corrosion.

The study of the physical chemistry and petrography of slag still requires considerable development. There can be no doubt that corrosion problems will stand a greater chance of solution when this subject advances. The investigations on the phase relationships of the various metallic oxides and silica have certainly been helpful. The study of slags and their effects on refractory materials is, however, so complex, that, in many instances, the "equilibrium diagrams" are of limited value. Again the time factors of most of the actions involved in slag attack are not sufficient to allow equilibrium conditions to be reached. This adds great complication to the investigations.

Silica vertical retorts are subjected to a number of actions leading to disintegration. These include (1) flaking; (2) spalling; (3) erosion and slag attack.

During the scurfing operation, surface disintegration, generally at positions in the upper half of vertical retorts, often takes place, pieces of the refractory coming off with the scurf. There can be little doubt that where scurf is burned off by the admission of air, localized high temperatures owing to the rapid combustion of the carbonaceous matter may result, following which there may be a fairly rapid cooling effect. The surface in contact with the scurf has probably been weakened at definite planes by (*a*) depositions and impregnations; (*b*) constitutional changes in the silica in the surface layers resulting from previous high temperature scurfings; and (*c*) a general spalling tendency of silica products.

Thus, it seems that the influence of such periodic high temperatures, besides embrittling the surface, may easily disintegrate an already-weakened material. The surface of the retort at the flaking zone is not equally affected. Those portions of the retorts adjoining tiles, or which are otherwise supported, do not show the trouble to the same degree as those which bound the combustion chamber. Again, certain retorts in the setting, by reason of their positions, receive a lower and less variable flue temperature. These do not show the trouble to the same extent. These observations point to the fact that the combustion chamber temperature and its possible variability, although not necessarily the direct cause, have an influence on flaking.

The properties of the scurf itself have received little attention. There can be little doubt that the extent of the adhesion of this substance to the refractory, together with the amount of its thermal expansion or contraction during the operation of the retort, particularly scurfing, plays some part in the disintegration of the refractory surface. Experience with different retorts carbonizing different coals suggests very strongly that the nature of the scurf varies considerably with the coal used and the carbonizing conditions, chiefly temperature. For instance, the tenacity with which the scurf is held to the surface varies very much in different settings. It is also possible that the thermal volume changes of the scurf also vary with its nature. It would seem, then, that the phenomena associated with the formation and rate of growth of scurf require careful definition. Finally, it is probable that some variation in the method of scurfing may reduce the flaking of retorts.

The durability of refractory materials in gas-making plants is very often limited by the influence of (1) slags and slag-forming substances, or (2) depositions within the body of the material, which do not necessarily form slags. This latter class of disintegrating agent is not always appreciated in the assessment of the cause of a failure. As illustration, in gas producers it has sometimes been observed that the lining material, at certain zones of comparatively low temperature, has been disintegrated into powdered form or badly cracked in a peculiar manner. An examination of the fragmentary remains may show them to contain appreciable quantities of carbon. It would appear that this carbon has been deposited at certain spots in the body of the firebrick, and that this deposition has eventually resulted in the observed disruption. Observations have shown that the carbon in such disintegrated products has been obtained from carbon monoxide. Actually it is well known that this gas can be decomposed into carbon dioxide and carbon in the presence of certain substances at temperatures approximately ranging from 350° to 650° C. A considerable amount of experimental work on this subject has indicated that particular types of "iron spots" in firebricks cause the breakdown of the monoxide, and the deposition introduces a strain sufficient to cause the disruption of the product. As the result of recent work, the nature of the ferruginous material giving rise to this deposition has received some definition.

Depending on the temperature and nature of the at-

* From a paper before the 26th Annual Convention, Canadian Gas Association, Ottawa, Sept. 18-19, 1933.

mosphere, the " iron " exerts either a surface disintegrating action or a corrosive influence. Where the temperature is sufficiently high, fusible silicates will be formed, which, depending on temperature gradient, porosity, and nature of the matrix, among other factors, will tend to diffuse into the brickwork, probably causing ultimate failure. The nature of the atmosphere is of great importance. It has been shown that the influence of steam in reducing the refractoriness of a cone containing added ferric oxide is very pronounced; the reduction being of the order of 200° C., from 1400° to 1200°. Further, such an atmosphere may reduce considerably the temperature of formation of fusible iron silicates, with the attendant increase in the fluidity of such a slagging agent at the temperature of action. The atmosphere in gas retorts and coke ovens is complex and variable; and such influences may be anticipated. Further, the gases often take selective paths by way of the wall in vertical retort work—a fact which must accentuate the action of the atmosphere at the surface. Where " steaming " is adopted, there certainly seem to be conditions such as will render the formation of fusible iron silicates comparatively easy. Erosion of retort work can take place by the rubbing action of coke on the more or less fluid surface —a circumstance which may lead to ultimate failure of the retort.

The value of the refractoriness-under-load of a firebrick impregnated with ferruginous slag is very considerably reduced. In the case of silica products, however, a number of observers have noted that up to a certain degree the absorption of slag or dust rich in " iron " at high temperatures affects the softening-point under load to a relatively small extent. It has been stated that the presence of iron estimated at 10% of ferric oxide has only a very small effect on the under-load value. Iron compounds impregnating a silica product may have attacked or combined with the matrix; but the interlacing skeleton of silica, mainly in the form of tridymite and cristobalite, may be unaffected. In these circumstances, the product appears to possess definite structural stability.

Spalling.

Besides the breakdown of refractory materials by corrosion, erosion, or the disintegrating effect of some vapour, it is necessary to recognize a class of failure under the heading of spalling. Spalling can be regarded as the failure of a refractory material to withstand without disrupture those stresses induced by temperature fluctuations or thermal shock under the general and special conditions of industrial usage. As already indicated, there are many cases of cracking and disintegration which can hardly be brought within this classification.

From the purely theoretical point of view, and in the light of the above definition, spalling results from the inability of a refractory material to resist thermal stresses, without the development of continuous cracks. Whether a given refractory shape, subjected at one or more faces to a given temperature, does or does not crack, might appear to be dependent on three fundamental factors: (1) The rate of change of temperature, which can be effected under definite conditions in the interior of the refractory; (2) the elastic, viscous, and " strength " properties of the material and their variation with temperature; (3) the nature and extent of the volume changes set up by rapid fluctuations of temperature. The first factor is defined by the coefficient of temperature diffusivity of the material together with measurements respecting the size and contour of the mass. The second is exceedingly difficult of definition, but the maximum shearing strain of a specially prepared test piece is sometimes taken. The third factor is adequately circumscribed by a study of the reversible thermal expansion and the velocity of those changes involving expansions observed in the constituents of a refractory product.

The coefficient of thermal expansion for firebricks shows considerable variation for different products. This fact is of the highest importance in structural work, and may account for many of the structural breakdowns noted in furnace construction for which there is otherwise no apparent explanation. This variation appears to be connected with two variables—viz., the amount of firing and the constitution of the original clay. It is now established that firebricks of comparatively high alumina contents have, in general, low coefficient of reversible expansion, while those high in silica often have high values for this property. In some instances, continued firing seems to increase the thermal expansion, in others to decrease it. It has been stated that the lowest value for the coefficient of thermal expansion was obtained from a test piece fired to an extremely high temperature. This firing treatment in all probability produced an excessive amount of vitrified or glassy matrix, which, as such, possesses a comparatively low value for the constant in question. It is thus probable that bricks heated drastically enough to cause all the " free " silica to go into solution in the matrix, will show a low coefficient of expansion.

Silica products are prone to spalling, particularly at low temperatures.

Thermal Properties.

An appreciable amount of data, including the measurement of thermal conductivity, temperature diffusivity, specific heat, and heat capacity of silica, fireclay, and magnesite products has been reported during the past ten years or so, but much research in these properties still requires to be completed. In connection with the data obtained on the coefficient of thermal conductivity a number of interesting points have been recorded. Some of these may be summarized as follows:

(1) In the case of silica and fireclay products, the coefficient of thermal conductivity increases with temperature; in the case of magnesite products the bulk of the evidence points to a decrease, particularly at high temperatures.

(2) The thermal conductivities of fireclay and silica products, although varying in the different materials, are, nevertheless, similar. It has been proved that good or first-class silica and fireclay products have very similar average values for the coefficient at lower temperatures, but that the silica has a higher value at higher temperatures.

(3) Increasing the original firing treatment of silica or a firebrick increases the conductivity.

(4) Often the continued use of refractory materials results in an increased conductivity.

(5) There is a relationship between the texture, porosity, and thermal conductivity of a refractory product.

An appreciation of the data reported on the specific heat of refractory products indicates clearly that brickwork at high temperatures acts as a reservoir of heat. Further, the value of this property for the commoner refractories increases with temperature, so that at a temperature of 1200° C. it is increased by nearly three-quarters of its value at ordinary temperatures. Such data are essential to a consideration of the thermal efficiency of regenerators and of the heat loss in the structure of an intermittent furnace.

There is much evidence that considerable fuel value is lost by way of the walls of gas-making installations, and, further, that this loss is greatly increased by the utilization of higher combustion chamber temperatures. Thus, the trend of modern design of both vertical and horizontal settings makes the use of adequate methods of insulation a necessity. In this connection it is of interest that the study of the thermal properties of insulating materials was followed by an extended exploration of their application to retort settings. In this later work it was indicated that diatomite products have a wide application in the carbonizing industry. Further, it was shown that a preconceived disposition of insulating materials based on an appreciation of their properties, the behaviour of the refractory in the setting, the peculiarities and functions of the plant, is very desirable; and that insulation as an afterthought requires very careful consideration.

When design involves external insulation there are strong arguments for building in the insulating brickwork after the setting has attained working temperatures. The investigations have stimulated greater interest in the subject of insulation and have given a lead in the assessment of the desired properties of diatomite insulating bricks. Recently it has been proved that the diatomite product, in spite of its high porosity, has a very low value for the permeability to gases, a property which must be of value in a furnace structure.

The user of refractory materials, particularly the gas engineer, is continually reaping the reward of research progress. Obviously, much of the work has been directed towards helping the manufacturer. In so far as such work influences the quality and cost of refractory materials it is of interest to the user.

I am convinced that the investigations completed since the war have had a remarkably beneficial influence on the economic manufacture and application of refractory products.

GAS FIRES IN HOTELS AND BOARDING HOUSES

Novel Means for Controlling their Use

After three years of concentrated investigation, costly experimental work, and the solution of many problems, an instrument has been evolved, and is now in process of mass production, which should greatly help the use of gas fires in hotels and boarding houses. The inventor has been backed by encouragement from the Gas Industry and hotel proprietors, and has exercised meticulous care in designing and re-designing, with the object of producing a reliable and compact instrument in conformity with low cost and a pleasing appearance. The instrument is known as the Bremner patent "Autoclock" gas fire control.

It is not a "slot-meter" or any other form of gas meter, but a means for automatically checking the time a gas fire is in use. The fire is thus hired to the user regardless of the amount of gas consumed, although the charge per hour for hire of the fire, *ipso facto*, covers the maximum possible consumption of gas and may be calculated to give a satisfactory margin of profit.

The "Autoclock" control enables an hotel visitor not only to obtain his money's worth, but to check, in the easiest possible manner, the cost he is incurring, and thereby to regulate his expenditure. It is a definite encouragement to visitors to use gas fires.

The "Autoclock" control is a direct incentive to the greater use of gas fires, and the benefits at once become obvious to all three parties to the contract—the visitor, the hotel proprietor, and the gas undertaking.

The "Autoclock" control is only a little over 5 in. square, and, in conformity with the modern trend, is

The "Autoclock" Control.

smart in appearance with its chromium-plated fittings and selection of coloured bakelite cases to tone with the room decorations and furnishing.

A brief description will suffice to convey the *modus operandi*. The ordinary gas cock which controls the fire is dispensed with, and the "Autoclock" control is installed in the pipeline in a position adjacent to the fire; this cock is locked to prevent use and is unlocked on request, and the key is retained by the hotel staff at all times.

As stated, the "Autoclock" works on a time basis, and a clock drives a registering means comprising a large dial marked from "0" to "50" (hours of use) in plain figures which anyone can read at a glance. Assuming the maximum use of a fire will be six hours per day for seven days in the week, this is estimated to be an adequate total for one week, at the end of which the reading is taken and the hand is set back to "0" in a very simple manner.

The following reprint of the printed instructions issued with each control will indicate the method of installation and use:

INSTRUCTIONS FOR INSTALLING AND USING THE BREMNER PATENT "AUTOCLOCK" GAS FIRE CONTROL.

The "Autoclock" should be installed in approximately the same position as the gas tap which it replaces; a good position will add to the appearance and facilitate reading; if possible place it against the wainscoating, either inside or outside the kerb.

Refer to the cost table with this card and decide upon the charge per hour to be made for use of the fire and write this in ink (pencil is unsuitable on the varnished surface) in the blank space on the notice card provided with each "Autoclock;" this card may then be hung up in any convenient position adjacent to the fire.

This card reads:

GAS FIRE.

The charge for using the fire is per hour.

NO COINS ARE REQUIRED.

The gas tap is locked and will be unlocked on request for duration of visitors' stay.

Visitors are invited to check hours of use on the "Autoclock" control, which starts at zero.

When the "Autoclock" has been unlocked in accordance with the instructions on the notice card, the key must be removed from the lock and be retained by the staff (only one key is necessary for any number of "controls"). At the end of a visitor's stay the dial should be read and the "Autoclock" should be locked (this automatically re-sets the indicating hand to "0"); in the case of visitors staying for more than one week the "Autoclock" should be read every week and re-set to "0"; the charge in either case is entered on the visitors' hotel account.

The "Autoclock" control requires to be wound periodically like an ordinary clock, but it need not be wound more often than once per month; under certain conditions this period would be two months or more, but it is advisable to wind regularly on the 1st of each month.

In conclusion, it may be of interest to note that the inventor, Mr. Douglas O. Bremner, A.M.I.Mech.E., A.Inst.P.T., has had considerable experience in designing various forms of measuring and registering apparatus and has had during the past twelve years upwards of twenty applications for examination under section 6 of the Weights and Measures Act, 1904, before the Standards Department of the Board of Trade. To keep the "Autoclock" control "All-British" and foster home industries, the inventor has taken particular trouble to obtain a British-made clock movement, specially designed for his requirements.

The Manufacturers, Patentees, and Sole Concessionaires for this invention are Messrs. Bremner Patents (Holding Company), Ltd., 1, Ironmonger Lane, E.C. 2.

Legal Intelligence

Ammoniacal Liquor and Stream Pollution.

Mr. Patrick Drohan, Manager of Magherafelt Gas-Works, Co. Derry, has been fined £5 at the local Court for discharging poisonous matter into a stream at the back of the works. The prosecution was brought by the Inspector of Fisheries, Mr. Andrew King.

Constable Gilmore said that he saw a large number of fish lying dead in a stream at the back of Millbrook, and there was an oily or tarry substance on the surface of the water. He followed this stream up to the gas-works, and found this substance discharging from a pipe at the back of the works.

Mr. King stated that he found hundreds of fish dead. The oily matter on the surface of the stream was generally known as gas liquor, and it could only have come from the gas-works.

The defendant said no liquor was ever discharged from the works into the stream. The stream at the back of the works, he always understood, was an open sewer.

The Whessoe Process of Electrical Precipitation.

Founded in the year 1790, the Whessoe Foundry and Engineering Company, Ltd., of Darlington, have for many years made a special study of every aspect of the industrial treatment of gases.

A recently published brochure, dealing with the firm's electrical precipitation process, is the outcome of technical research carried to its successful conclusion in practice. The removal of suspended particles from gases is a subject which is receiving more and more attention in a great number of industrial fields, and, as the present publication clearly shows, the advent of electrical precipitation has materially advanced the process of gas cleaning. Some of its outstanding advantages may be briefly cited. These include high efficiency, no water or slurry, negligible pressure loss, simplicity of design and operation, low maintenance and power consumption costs, gas can be cleaned at any temperature up to red heat, reliability and continuous operation, and recovery of valuable products in usable form. With very few exceptions, any type of suspended matter can be removed from any industrial gas.

The introduction refers to the various methods of removing dust and fog from gases, and leads up to the advantages of applications of precipitation. The general principles are then briefly described, and these will prove most illuminating to those not conversant with the system. The high-tension generating unit is an important feature of the plant, and this is described in detail. In order to ensure an effective and stable discharge in commercial precipitation plants, unidirectional current of 20,000 volts upwards is necessary. The lowest limit of voltage for a given plant depends on the nature of the current. The production of such a current has presented grave difficulties, and until the advent of the English Electric Company's high-tension D.C. system, the rectification of high-tension alternating current was universally adopted. The system consists of a simple motor or engine-driven generating set, the high-tension generating unit comprising one, two, or more generators, according to the voltage required.

The section on tar fog extraction is naturally of most interest to gas and coke oven engineers, and the "W.W.-D." electro detarrer, which is illustrated on a coloured insert, is proving a thoroughly effective and efficient unit. In this application, as the abbreviated appellation infers, the firm are working in conjunction with the Woodall-Duckham Company. In this plant the gas treater comprises discharge electrode wires suspended at the axes of vertical tubes which act as collecting electrodes, the whole arranged in a mild steel vessel to form a complete gas-tight unit.

Other interesting matter dealt with in the brochure, which is copiously illustrated by photographs and diagrams of plant, includes the Whessoe de-dusting system, which is applicable to the removal of any dust from any gas; the cleaning of electrodes; details of the firm's facilities for submitting data for designing; discharge phenomena; and the Whessoe-Zschocke disintegrator. A final section indicates in what important respects the Whessoe Company are in a position to supply equipment for the Gas Industry, the coal trade, the iron and steel industries, and the oil world.

Holmes' "Early Gas Apparatus" Calendar.

The Calendar for the final quarter of the current year, which Messrs. W. C. Holmes & Co., Ltd., distribute to their friends in the Industry, gives further examples of "pioneer gas apparatus," and reproduces in the original colours a drawing showing in part section two interesting types of gasholders devised by Clegg.

Examples of both types were actually in use at the time Accum published his "Process of Manufacturing Coal Gas" in 1819. The use of ordinary column-guided gasholders had already been widely adopted at that time, but the deep water tank was considered too costly and too difficult of construction.

It is interesting to recall that no further attempts to reduce or eliminate altogether the water seal were made until the "waterless" holder was introduced.

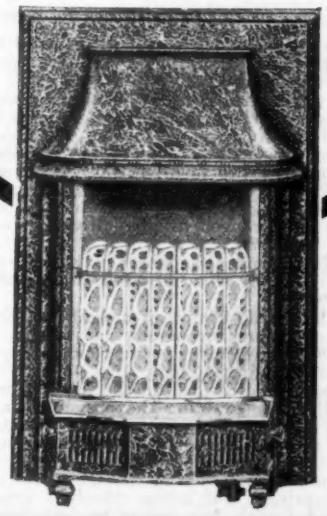
The revolving gasholder illustrated had a capacity of 15,000 c.ft. and weighed 12 tons, being erected at the Westminster Gas-Works. The tank constructed of brickwork was 7½ ft. in depth. The collapsing holder also shown had a capacity of 30,000 c.ft., and measured 30 ft. in height, 40 ft. long at the base, and 30 ft. wide.

FOR HIGHER HEAT RESISTANCE

Foochow

"500" ORIENTAL LACQUER

for GAS FIRES, etc.



Leading gas undertakings and stove manufacturers now use "FOOCHOW" for the artistic finishing of fires, cookers and other gas appliances. The beautiful "FOOCHOW" colourings can be used with complete confidence—"FOOCHOW" does NOT discolour under hardest normal usage conditions. TEST IT YOURSELF. Samples with pleasure.

A good gloss finish can be obtained by spray with "Foochow" Oriental Lacquer in one coat

DONALD MACPHERSON & CO., LTD.
LONDON AND MANCHESTER

H.C.T.

GAS MARKETS & MANUFACTURES

Stock Market Report.

[For Stock and Share List, see later page.]

The new Account opened last week with a considerable increase in activity, and prices advanced in many directions. British Funds continued strong, and these with other high-class investment securities were stimulated by the new Treasury Conversion Loan. Leading industrials were in demand, especially iron and steel shares, and Home Rails advanced on the further good traffic results.

There was a large volume of business in Gas stocks and shares, and prices again forged ahead. In the past few weeks the movement has been confined almost entirely to ordinary stocks, but last week some demand set in for preference and debenture issues, and several of these improved slightly in value. The most spectacular rise was that of the South Shields consolidated stock which advanced 27 points to 173-177 on the Newcastle Exchange, and at the time of writing there is £6500 of this stock on offer in London at 178½, yielding £4 15s. 3d.% on an 8½% dividend basis, the rate paid for the past twelve years. A parcel of Watford and St. Albans Gas is offered at 151, yielding £4 9s. 4d., but apart from these, Gas Light units offered at 27s., and Imperial Continental at 225, available supplies of ordinary stock are scarce. The other principal increases occurred in Gas Light units, which advanced 3d. to 26s. 6d.-27s. 6d.; Hastings 5% and 3½%, with rises of 6 and 3 points respectively; Imperial Continental, with 5 points to 215-225; and Commercial, with a gain of 3 points to 118-123. Among debentures, Commercial, Gas Light, and South Metropolitan 3% all advanced 1 point, and Tottenham 4%, 2 points.

Current Sales of Gas Products.

The London Market for Tar Products.

LONDON, *Oct.* 2.

The market for tar products remains practically unchanged.

Pitch is quoted at 77s. 6d. to 78s. per ton f.o.b.

Creosote is slightly firmer owing to large quantities having been taken up in some parts of the country for fuel purposes, and the price is quoted 3d. to 3½d. per gallon.

Refined tar is 4d. to 4¼d. per gallon in bulk at makers' works.

Pure toluole is about 2s. 9d. to 2s. 10d.; Pure benzole, 1s. 9d.; solvent naphtha, 95/160, is steady at 1s. 7d. to 1s. 8d.; and 90/140 pyridine bases, 4s. 3d. to 4s. 6d.—all per gallon naked at makers' works.

Tar Products in the Provinces.

Oct. 2.

The average prices of gas-works products during the week were: Gas-works tar, 30s. to 35s. Pitch—East Coast, 72s. 6d. to 75s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 72s. 6d. to 75s.* Toluole, naked, North, 1s. 10d. to 2s. Coal-tar crude naphtha, in bulk, North, 6d. to 6¼d. Solvent naphtha, naked, North, 1s. 6d. to 1s. 6¼d. Heavy naphtha, North, 10d. to 11d. Creosote, *ex* works, in bulk, North, liquid and salty, 2d. to 2½d.; low gravity, 2d.; Scotland, 2d. to 2½d. Heavy oils, in bulk, North, 4d. to 4½d. Carbolic acid, 60's, 2s. 7d. to 2s. 8d. Naphthalene, £9 to £10. Salts, 55s. to 75s., bags included. Anthracene, "A" quality, 2½d. per minimum 40%, purely nominal; "B" quality, unsalable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

GLASGOW, *Sept.* 30.

Stocks being within reasonable bounds, values are well maintained; but new business is not too plentiful.

Crude gas-works tar.—The actual value is 40s. to 45s. per ton *ex* works.

Pitch.—Export business is poor, and price is round 70s. per ton f.o.b Glasgow. The value for home consumption is 70s. to 72s. 6d. per ton *ex* works in bulk.

Refined tar to Ministry of Transport Specification is quoted at 8½d. per gallon f.o.r. in bulk.

Creosote oil finds a steady outlet, and quotations are firm. B.E.S.A Specification is 3d. to 3½d. per gallon; low gravity, 3d. to 3½d. per gallon; and neutral oil, 3d. to 3¼d. per gallon; all in bulk *ex* works.

Cresylic acid.—While prices remain steady, there is little new business being placed. Pale, 97/99%, is 11d. to 1s. per gallong; dark, 97/99%, 9d. to 10d. per gallon; and pale, 99/100%, 1s. 2½d. to 1s. 3½d. per gallon—all f.o.r. in buyers' packages.

Crude naphtha remains scarce with value steady at 4¼d. to 4⅜d. per gallon *ex* works in bulk, according to quality and quantity.

Solvent naphtha.—90/160 grade is 1s. 4d. per gallon, and 90/190 heavy is 1s. per gallon.

Motor benzole.—Value is nominal at 1s. 5d. per gallon *ex* works, there being practically nothing available for prompt.

Pyridines.—90/160 grade is 3s. 3d. to 3s. 6d. per gallon, and 90/140 grade 3s. 6d. to 3s. 9d. per gallon.

Benzole Prices.

These are considered to be the market prices for benzole at the present time:

	s.	d.		s.	d.	
Crude benzole	0	9	to	0	9½	per gallon at works
Motor ,,	1	4	,,	1	4½	,, ,, ,,
Pure ,,	1	7½	,,	1	8	,, ,, ,,

Trade Notes.

The Integra Gas Volume Recorder.

We have received from the Integra Company, Ltd., of 183, Broad Street, Birmingham, a leaflet concerning their new gas volume recorder, which operates in conjunction with the usual devices—diaphragm plate or orifice, venturi, and sometimes, in special cases, the Pitot tube.

Contracts Advertised To-Day.

Retorts, Resetting.

Bexhill Gas Department. [p. 96.]

New Capital Issues.

Bognor Gas and Electricity Company.—The stock of this Company which was recently offered for sale by tender was very much over-subscribed. No less than a sum, including premiums, of £79,151 7s. was applied for, representing £48,330 stock and premiums thereon £30,821 7s. Of the applications the sum of £8380 of stock was allotted, which realized premiums thereon to the value of £6436 17s. The highest tender accepted was at the rate of £185%, and the lowest accepted £175 10s.%, making an average price of £176 16s. 8d.%.

Register of Patents

Centrifugal Washers.—No. 389,653.

COOPER, C., HENSHAW, D. M., and W. C. HOLMES & CO., LTD., all of Huddersfield.

No. 8270; March 19, 1932.

This invention relates to rotary pumps of the centrifugal type and to apparatus for bringing gases or vapours into intimate contact with liquids.

A rotary pump in accordance with the invention is of the kind comprising a plurality of pump rotors mounted upon a common shaft and operating in a housing common to a plurality of rotors and divided into independent chambers for the rotors. Each chamber is provided with means for admitting liquid adjacent to the axis of the rotor and an outlet adjacent to the peripheral wall of the chamber, and the inlets to the pump chambers are arranged to admit liquid at one side only of the rotor.

The adjacent pump chambers may be arranged in pairs with their inlets on the adjacent sides of each of the members of a pair.

Where the pump comprises more than one pair of chambers, the face of a chamber of one pair which is remote from the inlet will abut against a correspondingly positioned face of a member of an adjacent pair.

Means may be provided on the pressure and suction sides of the impellers for enabling the pressure conditions in adjacent chambers to be determined, and there are also means for equalizing the pressure in the several pump chambers.

Where the apparatus comprises two sets, each including four compartments, with each of the sets there will be associated a pump comprising four pump chambers arranged in two pairs and provided with four rotors or impellers mounted upon a common shaft.

STOCK AND SHARE LIST.

Official Quotations on the London and Provincial Stock Exchanges.

Issue. £	Share.	When ex-Dividend.	Dividends. Prev. Hf.-Yr. % p.a.	Dividends. Last Hf.-Yr. % p.a.	NAME.	Quotations. Sept. 29.	Rise or Fall on Week.	Transactions. Lowest and Highest Prices During the Week.
1,551,868	Stk.	Apl. 3	7⅞	7	Alliance & Dublin Ord. ...	122–132	...	...
374,000	,,	July 10	4	4	Do. 4 p.c. Deb. ...	85–95	...	...
557,655	,,	Aug. 28	7	7	Barnet Ord. 7 p.c.	165–170	...	167–169
300,000	1	May 8	1/4⅛	1/9⅜	Bombay, Ltd.	25/–27/-	...	26/- 27/-
178,280	Stk.	Aug. 14	9½	9½	Bournemouth sliding scale	192–202	...	...
550,050	,,	,,	7	7	Do. 7 p.c. max. ...	163–168	...	...
439,160	,,	,,	6	6	Do. 6 p.c. Pref. ...	135–140	...	...
50,000	,,	June 26	3	3	Do. 3 p.c. Deb. ...	74–79	...	...
162,025	,,	,,	4	4	Do. 4 p.c. Deb. ...	99–104	...	...
210,000	,,	,,	5	5	Do. 5 p.c. Deb. ...	120–125	...	...
357,900	,,	Aug. 28	7½	7½	Brighton, &c. 6 p.c. Con. ...	157–167	...	163–164
540,000	,,	,,	6⅔	6⅔	Do. 5 p.c. Con. ...	144–149	+1	147
195,500	,,	,,	6	6	Do. 6 p.c. B Pref.	134–139	...	138–139
1,487,500	,,	July 24	5	5	Bristol 5 p.c. max.	111–112*a*	...	...
120,420	,,	June 26	4	4	Do. 1st 4 p.c. Deb.	99–101*a*	...	...
217,870	,,	,,	4	4	Do. 2nd 4 p.c. Deb. ...	99–100*a*	...	...
328,790	,,	,,	5	5	Do. 5 p.c. Deb.	121–123*	+1½	...
855,000	,,	Sept. 25	8	7	British Ord.	155–160*	−2	160
100,000	,,	June 26	7	7	Do. 7 p.c. Pref.	145–150	...	...
350,000	,,	,,	5½	5½	Do. 5½ p.c. Pref. ...	108–113	...	...
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb. ...	94–99	...	...
450,000	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	103–113	...	...
160,000	,,	June 26	5	5	Cambridge 5 p.c. Deb. ...	115–120	...	...
100,000	10	May 22	6	4	Cape Town, Ltd.	7–8	...	...
100,000	10	Apl. 24	4½	4½	Do. 4½ p.c. Pref. ...	7–8	...	...
150,000	Stk.	June 26	4½	4½	Do. 4½ p.c. Deb. ...	93–98	...	...
626,860	,,	July 24	6	6	Cardiff Con. Ord.	117–122	...	...
237,860	,,	June 26	5	5	Do. 5 p.c. Red. Deb.	105–110	...	...
157,150	,,	Aug. 14	6½	5	Chester 5 p.c. Ord. ...	105–110*b*	...	...
98,936	1	May 22	2/-	2/-	Colombo, Ltd. Ord.... ...	1½–1⅝	...	34/6–34/10*
24,500	1	,,	1/4⅛	1/4⅛	Do. " 7 p.c. Pref. ...	18/6–20/6	...	...
609,204	1	Mar. 20	/11/48	/11/48	Colonial Gas Assn. Ltd. Ord.	17/6–20/-	...	...
296,053	1	,,	1/3/30	1/3/30	Do. 8 p.c. Pref.	1⅛–1½	...	...
1,796,955	Stk.	July 24	6½	5	Commercial Ord.	118–123	+3	120½
475,000	,,	June 12	3	3	Do. 3 p.c. Deb. ...	74–79	+1	...
265,272	,,	Mar. 6	—	5	Do. 5 p.c. Deb. ...	120–125	...	...
807,560	,,	Aug. 14	7	7	Croydon sliding scale ...	145–150	...	...
469,590	,,	,,	5	5	Do. max. div.	103–108	...	105
500,000	,,	July 10	5	5	Do. 5 p.c. Deb. ...	120–125	...	...
542,270	,,	Mar. 6	7	10	Derby Con.	155–165*c*	...	...
55,000	,,	July 10	4	4	Do. 4 p.c. Deb. ...	93–98*c*	...	...
209,000	,,	Aug. 28	5	5	East Hull Ord. 5 p.c.	105–115	+2½	110
179,500	,,	Aug. 28	6	6	East Surrey Ord. 5 p.c.	127–132	+1	130½
155,019	,,	June 26	5	5	Do. 5 p.c. Deb. ...	117–122	...	...
1,002,180	,,	Sept. 25	†7	†5	European, Ltd.	140–145*	−3	...
19,373,992	,,	Aug. 14	5⅝	5⅝	Gas Light & Coke 4 p.c. Ord.	26/6–27/6*f*	+/3	26/9–27/4½
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max. ...	83–86	...	84½–86
4,477,106	,,	,,	4	4	Do. 4 p.c. Con. Pref. ...	100–103	...	101⅝–102½
6,102,497	,,	June 12	3	3	Do. 3 p.c. Con. Deb. ...	79–82	+1	80⅜–81½
3,642,770	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	115–118	...	...
3,500,000	,,	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	112–116	−½	113½–114
270,466	,,	Aug. 28	6	6	Harrogate New Cons. ...	120–125	...	...
82,500	,,	Aug. 28	7	7	Hastings & St. L. 5 p.c. Conv.	141–146	+6	139½–146
258,740	,,	,,	5½	5½	Do. 3½ p.c. Conv.	111–116	+3	112–116
140,000	1	Apl. 24	†10	†10	Hongkong & China, Ltd. ...	31/–33/-	...	32/3
218,200	Stk.	Aug. 14	6	6	Hornsey Con. 3½ p.c. ...	120–125	...	...
5,600,000	,,	May 22	10	14	Imperial Continental Cap.	215–225	+5	208–221
223,130	,,	Aug. 14	3½	3½	Do. 3½ p.c. Red. Deb.	89–94	...	...
235,242	,,	Aug. 14	8½	8½	Lea Bridge 5 p.c. Ord. ...	167–172	...	...
2,145,907	,,	Aug. 14	6	6	Liverpool 5 p.c. Ord. ...	128–130*b*	+2	...
245,500	,,	June 26	5	5	Do. 5 p.c. Red. Pref. ...	103–113*b*	...	...
306,083	,,	July 17	4	4	Do. 4 p.c. Deb. ...	99*b*–101*b*	...	...
165,736	,,	Aug. 28	10	8	Maidstone 5 p.c. Cap. ...	180–190	...	...
56,176	,,	July 10	3	3	Do. 3 p.c. Deb. ...	69–74	...	75
75,000	5	June 12	†10	†10	Malta & Mediterranean ...	9–11	...	...
392,000	—	Apl. 1	5½	5½	Metropolitan (of Melbourne) 5½ p.c. Red. Deb.	98–103	...	...
231,978	Stk.	Aug. 28	5	5	M. S. Utility "C." Cons. ...	110–115	...	...
818,657	,,	,,	4	4	Do. 4 p.c. Cons. Pref.	99–97	+1	...
112,126	,,	June 26	4	4	Do. 4 p.c. Deb. ...	100–102	...	102
148,955	,,	,,	5	5	Do. 5 p.c. Deb. ...	118–118	...	...
675,000	,,	21 May '31	†6	†6	Montevideo, Ltd.	53–63	...	57
2,051,315	,,	Aug. 14	5⅓	5	Newcastle & Gateshead Con.	25/–26/-*d*	...	...
682,856	,,	,,	4	4	Do. 4 p.c. Pref. ...	98–100*d*	...	...
776,706	,,	July 10	3½	3½	Do. 3½ p.c. Deb. ...	91–93*d*	...	...
277,285	,,	May 8	5	5	Do. 5 p.c. Deb. '43...	107–109*d*	...	...
274,000	,,	Aug. 14	5	5	Newport (Mon.) 5 p.c. max.	100–102*a*	...	...
204,940	,,	Aug. 28	7½	7½	North Middlesex 5 p.c. Con.	144–152	...	...
396,160	,,	Aug. 14	5	5	Northampton 5 p.c. max. ...	101–106	...	...
300,000	,,	Apl. 24	9	7	Oriental, Ltd.	114–119	...	...
316,617	,,	June 26	8	8	Plym'th & Stonehouse 5 p.c.	166–171	...	...
504,416	,,	Aug. 28	8	8	Portsm'th Con. Stk. 4 p.c. Std	162–167	+4	...
241,446	,,	,,	5	5	Do. 5 p.c. max. ...	102–107	...	...
114,000	,,	Aug. 14	5	5	Preston 5 p.c. Pref.	101–106	...	...
686,313	,,	July 24	4	4	Primitiva 4 p.c. Rd. Db. 1911	86–91	...	...
389,813	,,	June 26	4	4	Do. 4 p.c. Cons. Deb.	82–87	...	...
150,000	10	Sept. 25	6	6	San Paulo 6 p.c. Pref. ...	6½–7½*	−½	...
1,736,968	Stk.	Sept. 11	6	6	Sheffield Cons.	126–129*a*	...	...
95,000	,,	July 10	4	4	Do. 4 p.c. Deb. ...	90–91*c*	...	...
133,201	,,	Sept. 11	5	8½	Shrewsbury 5 p.c. Ord. ..	132–137*	...	...
90,000	10	June 12	15	14	South African	3–5	...	...
6,709,895	Stk.	Aug. 14	7	5	South Met. Ord.	129–132	...	129–131
1,135,812	,,	,,	6	6	Do. 6 p.c. Irred. Pf.	135–140	+1	137–139*i*
850,000	,,	,,	20/-*g*	4	Do. 4 p.c. Irred. Pf.	99–103	...	101½–102½
1,895,445	,,	July 10	3	3	Do. 3 p.c. Deb. ...	77–80	+1	...
1 000,000	,,	July 24	5	5	Do. 5 p.c. Red. Deb	112–116	...	114½–115
209,820	,,	Aug. 14	8½	8½	South Shields Con.	173–177*d*	+27	...
1,543,795	,,	Aug. 14	6	6	South Suburban Ord. 5 p.c.	125–130	...	127½
300,000	,,	,,	5	5	Do. 5 p.c. Pref.	112–117	...	...
300,000	,,	,,	—	4	Do. 4 p.c. Pref.	99–103	...	100½
868,837	,,	June 26	5	5	Do. 5 p.c. Deb.	118–123	...	...
100,000	,,	,,	—	—	Do. 4 p.c. Deb.	102–105	...	102½
647,740	,,	Aug. 28	5	5	Southampt'n Ord. 5 p.c. max.	107–112	...	109–111
121,275	,,	June 26	4	4	Do. 4 p.c. Deb.	99–104	...	...
350,000	,,	Aug. 28	5½	5½	Swansea 5½ p.c. Red. Pref.	107–111	...	...
200,000	,,	June 26	6½	6½	Do. 6½ p.c. Red. Deb.	103–108	...	...
1,076,490	,,	Aug. 14	6⅔	6⅔	Tottenham and District Ord.	146–151	+1	148½–149½
300,000	,,	,,	5½	5½	Do. 5½ p.c. Pref. ...	121–126	...	...
69,235	,,	,,	5	5	Do. 5 p.c. Pref. ...	108–113	...	110
199,005	,,	June 12	4	4	Do. 4 p.c. Deb. ...	98–103	+2	...
85,701	,,	Apl. 3	6	6	Tuscan, Ltd., 6 p.c. Red. Db.	80–85	...	...
347,769	,,	Aug. 28	7	7	Uxbridge, &c., 5 p.ct. ...	144–149	...	...
88,330	,,	,,	5	5	Do. 5 p.c. Pref. ...	110–115	...	...
1,322,220	,,	July 10	7	7	Wandsworth Consolidated	151–156	...	154–155
1,096,373	,,	,,	5	5	Do. 5 p.c. Pref.	113–118	−1	116½–117½
1,317,964	,,	June 26	5	5	Do. 5 p.c. Deb.	118–123	...	...
158,400	,,	Aug. 28	5A	5	Winchester W.&G.5p.c.Con.	107–112	...	...

Quotations at:—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. *f*—The quotation is per £1 of stock *g.*—For quarter. *h.*—Paid £3, including 10s. on account of back dividends. *i*—The interest due 1/7/33 was paid on that date. * Ex. div. † Paid free of income-tax. ‡ For year. Hongkong & China, Ltd.—paid on £10 shares.

STOCK FOR SALE BY TENDER.

By Order of the Directors.

THE BEDFORD DISTRICT GAS COMPANY.

Messrs. A. & W. RICHARDS

are Instructed to OFFER FOR SALE BY TENDER

£20,000

4½ PER CENT. REDEEMABLE DEBENTURE STOCK.

Minimum Price of Issue, £103 per £100.

Yielding at that Price, allowing for redemption at Par on the 1st January, 1950, £4 4s. 6d. per cent.

Prospectus and Form of Tender (which latter must be sent in by 11 o'clock on Tuesday, 17th October) may be obtained of A. & W. RICHARDS, 37, WALBROOK, E.C. 4.

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GAS, WATER, & STEAM

1¼in. to 12in. BORE.

THOS. ALLAN & SONS, LTD.,

Bonlea Foundry,

THORNABY-ON-TEES.

Telegrams: "BONLEA, THORNABY-ON-TEES."
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TROTTER HAINES, & CORBETT LIMITED

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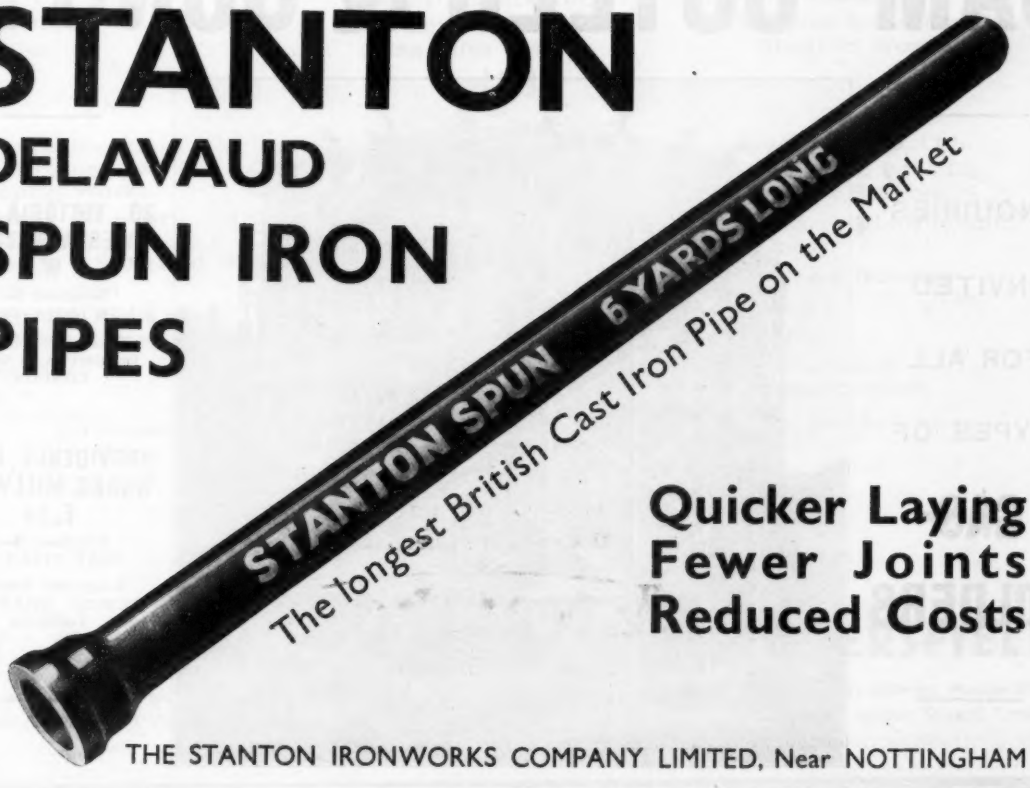

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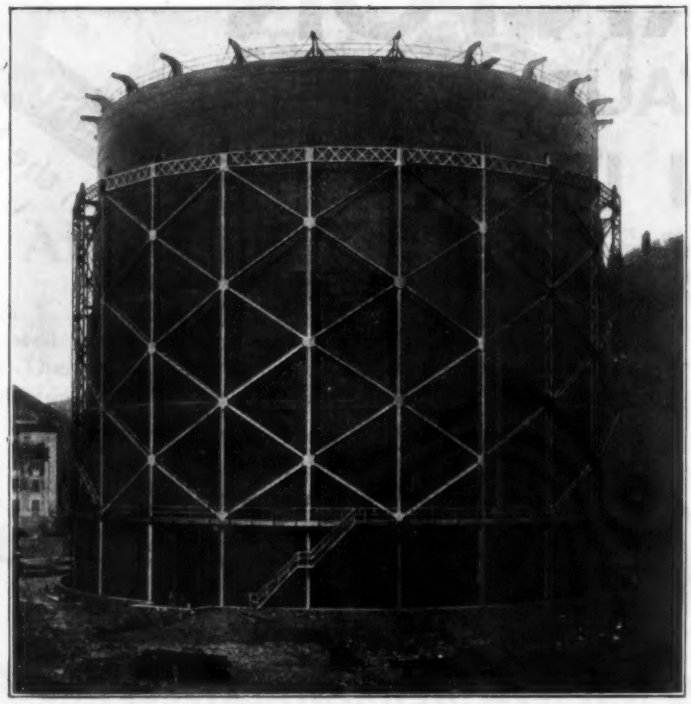

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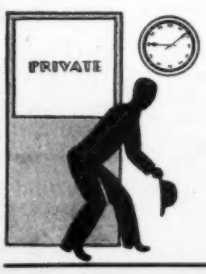

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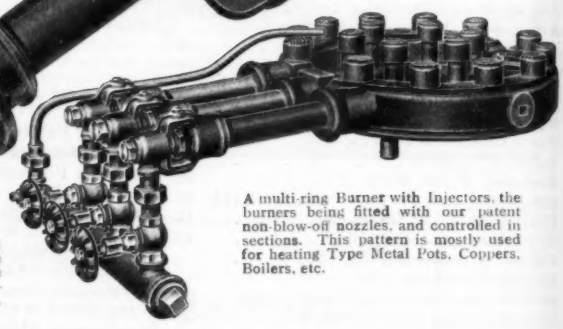

A multi-ring Burner with Injectors, the burners being fitted with our patent non-blow-off nozzles, and controlled in sections. This pattern is mostly used for heating Type Metal Pots, Coppers, Boilers, etc.

Typical Stamped Pattern Injector, 3-arm type.

— See our new List G105 —

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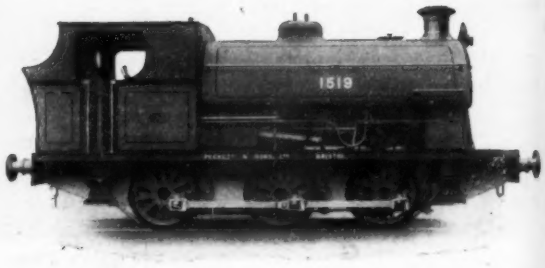

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